# PCCompu

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out the perfect

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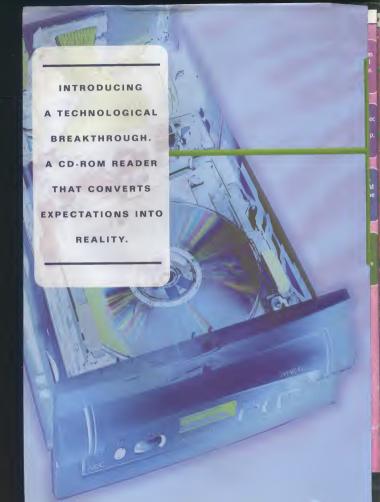
The Tests: Torture

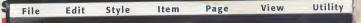
and more torture.

Result: The survivors

will surprise you.

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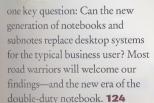
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DECISIONS

#### PCs at the Crossroads



Nobody wants Betamax when the world's going VHS. But in the fast-changing PC market, what do you bet on? We handicap eight key technology races. 166

MINDFOOD

#### Office 2000



Get ready to bulldoze the cubicles. Here's a preview of how PC technology will reshape how and where you'll worksooner than you think. 190

NEW. IMPROVED HELP: Work smarter, buy smarter, and do it your way. 202

FREE STUFF! This month's top 12 downloads, courtesy of our new I-Way Patrol. 306

#### New

NetworkMCI Business Fax, e-mail, video, and document sharing in one service. 80

- 83 Toshiba T4900CT First lowvoltage 75MHz Pentium portable hits the street.
- 84 Sony Magic Link 1000 PDA lets fingers do the walking with software agents.
- 99 Corel Ventura 5 At last, a version that looks and works like a Windows app.
- 102 Project Scheduler 6 for Windows Manage multiple projects with ease.



- 115 Proliant 2000R 5/66 Can Compag's server tame your network nightmares?
- 121 Logbook Long-term tests of ScanMan PowerPage and Rarracuda 2



PDAs get wired to Ma Bell; cheap graphics; software for scanners; simplified shipping; ultralight accessories; Windows 95 Watch; Radar; and more! 60

#### Heln

Working Smarter Simple steps to keep your confidential data safe and secure 202

- 205 Makeover Customize WordPerfect for Windows to do just what you want.
- 206 Do It Yourself How to use Word for Windows to make your very own PIM
- 212 Q&A Hardware and software solutions, tips. and tricks
- 218 Buying Smarter How to bridge the gap between vour PCs and Mars



227 Direct to You Spec Watch spotlights how to buy network cards, and more,

277 Product Index

283 Marketplace

In the Virtual Flesh You asked for it, you got it: CD-RON comes alive on the PCC CD. 314

- 306 I-Way Patrol Twelve great 309 CD-RON Ailing? Take two free downloads, hot siteseeing, and PC Contact.
  - medicinal CDs and call Dr. White in the morning.
- 314 PCC CD How to order PC Computing's ground-



breaking interactive CD.

In the ultimate multimedia conference room, even the most bottom-line-focused audience will be putty in your hands. 312

#### REVIEWS

HP Desklet 540 86 MultiSync XP21 vs. FlexScan T2-2D 88 CD-Rook 800 90 TravelCard Fast 28.8 90 Enson ES-1200C-Pro 92 SpeedPag 144 P vs. Megahertz Cellular 92 Views IPK 3.1 100 Aldus Persuasion 3 0 for Windows 106 CorelFlow 2 fl vs ABC SnapGraphics 2.0 106 Enrecast Pro 108

110

110

116

#### QualComm Eudora COLUMNS

Network Central

Xtree Gold

MAIL: Rants and raves by phone. fax, and Net. 25

#### PAUL SOMERSON: A

CIA turncoat learns about DOS the hard way. 69

ED BOTT: The marvels of Marvel, 71

JOHN C. DVORAK: Release the code: free the orphan apps. 75

GIL SCHWARTZ: Read e-mail, don't babble online, and other resolutions, 77



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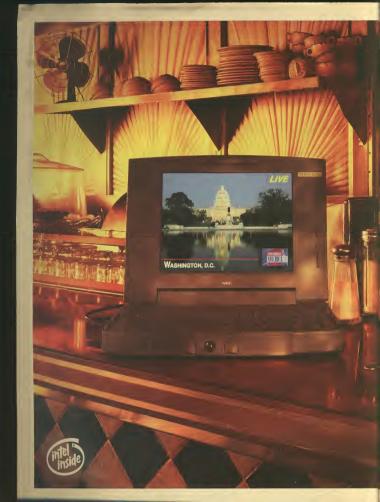
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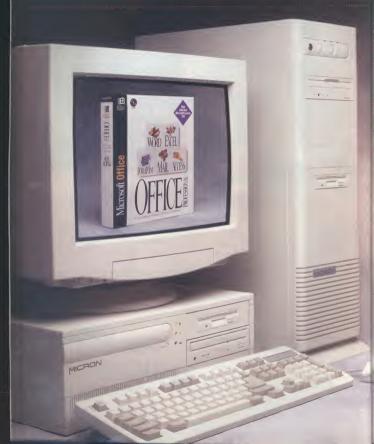
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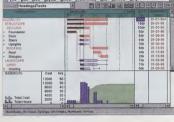


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#### Don't Call Us...

phone call is better than e-mail, eh? Gil Schwartz ("E-ffective Mail," October, page 49) must have a lot of time on his hands. E-mail is the greatest thing since sliced bread. When I type, I don't have to shoot the breeze or be social about what I am saying. I can get the point across right away. And I don't get interrupted in the middle of my thoughts. Everything I want to say makes it to your brain (unless you hit Del before finishing). Conversely, I don't interrupt you at your busiest. Even though we speak faster than we type, it probably takes you less time to read this than listen to me, so you actually save time.

RICH GAUTIER RG%SP-23DC%DRC@S1.DRC.COM

#### Superguide Sweep

Thanks for a terrific magazine. Ladmit that when I received the October issue, my first reaction was "Not another Windows Superguidel" (page 101), but when I reviewed the tips, many were quite helpful. I particularly enjoy Ed Bott's suggestions on reducing secreen clutter (sepecially necessary in my case, given that I have an ancient, tiny VGA monitor).

FELICITY BARRY AMHERST, MASSACHUSETTS

#### **How Not to Upgrade**

I had an unpleasant surprise when I took your Superguide's advice to upgrade windows 3.1 flor Workgroups. I went out and immediately installed the upgrade on my Compaq Presario. The 3.2-bit flae access would not function, due to an incompatibility with a hard drive that is only six months old. Microsoft explains that Compaq has something proprietary on its disk partition that will not allow 32-bit file access to run. So the main reason I purchased the upgrade is now up in smoke. Compaq had no explanation. I can't wait to try Pentium overdrive upgrades or a

32-bit operating system on this machine!

I was also shocked to find out that after installation I no longer had access to my LPT or COMM ports. Certain device drivers don't install correctly if you upgrade to 3.11 from some OEM versions of Windows (LPT) 386, COMM.386, SERIAL.386). Maybe you could publish a primer covering what types of things users should be wary of when installing new software.

BRETT KIRBY MOUNT PLEASANT, MICHIGAN

I THINK we just did. JZ

#### **Three Feet Under**

I agree with Ed Bort's column ("Parts Is Parts") October, page 41). While most people are inspecting every detail of their computer, they miss the really annoying obvious things. On my old Tandy 1000 RL, the keyboard cable was at least 4 feet 100g, On my 3MFL 486DX, if s about 1 foot long. On my 3MFL 486DX, if s about 1 foot long. This can be more annoying than waiting 10 seconds for Windows to boot or for your monitor to display those million-byte GIF files.

Matthew Holtz matthew.holtz@flipflop.wariat.org

#### Parts for the Course

Please give me contact information for NMB's RT-6800 Right Touch keyboard and PC Power & Cooling's premium line, which Ed Bott mentions in "Parts Is Parts?"

DAVIDSON ASSOCIATES HAMDEN, CONNECTICUT

LOTS OF FOLKS wrote in asking about these products. Here's the scoop: NMB's RT-6800 Right Touch family of keyboards costs less than \$30 each. You can reach NMB at (800) 662-8321. PC Power & Cooling's premium cases cost between \$79 and \$795. The Silencer 270 Power Supply costs \$169. Contact the company at (800) 722-6555. JOC

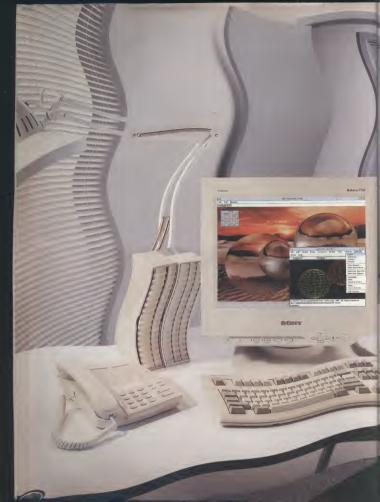
#### A Real Scream Saver

Thanks for exploiting the myth behind screen savers in the September Help (°FHying Smiles," page 222), I always thought the 
best screen saver was the "free" one that 
came with Windows—the one that blanks 
out the display. I have friends and colleagues 
who have spent hundreds of dollars on the 
latest and greatest screen savers, then complain when they have "out of memory" 
errors or that their systems crays.

KEVIN JONES CIS:73651,3466

#### This E-Mail Is Officially OK

In the September issue, Penn Jillette raises the issue of censorship in technology, mainly on the Internet ("alt.fan.gutenberg," page 352). He states that the government should not have any control over communications through the Internet or other forms of technology. He feels censorship would be a violation of our rights. I agree that some kinds of censorship would violate our First Amendment rights. There are, however, methods of controlling technology that do not violate a person's rights. An example would be the requirement of all access sites to provide methods of blocking certain parts of the Net, therefore allowing parents or





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#### Panning the Flames

Why do you publish letter writers' e-mail addresses? This is a change from most magazines' long-standing policies of publishing only the city and state. This may leave letter writers as flamebait. Just read some of the Usenet groups to see the flame wars.

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#### Obligatory OS/2 Fan Letter

I'm interested in a 32-bit, multitasking, multithreaded, operating system. IBM has been marketing such a system for years. It has been around long enough to purge bugs and develop a base of support. But PC Computing panders Microsoft products as though no other software solutions exist. "Windows does this, MS-DOS has that." Bill Gates must feel like he's the second coming of Henry Ford with the "any color you want as long as it's black" Model T.

So OS/2 is now in its third major iteration, and PC Computing should tell everyone all about it, right? Nope. Articles consume endless copy about software that isn't finished, and-when it finally hits the street-will leave 16- and 32-bit crashes all over the electronic highway, caused by Model T-ware threading its way through traffic and driving way below the speed limit. Then a major bug fix will follow so closely it could get a ticket for tailgating.

FREEMAN WATERS ROUND MOUNTAIN, CALIFORNIA

#### Obligatory DOS/Unix Fan Letter

Several of your readers believe that DOS is old and useless (Mail, October, page 23). The trend in operating systems is moving toward systems like Windows and Windows 95-graphical interfaces that are nothing new at all. Those who think that programming in Windows is easier and cheaper-and that DOS causes the loss of money and time-think again: Windows is far from a standard, and the costs to learn to program in it are high. When developing for Windows 95, people have to learn new ways of programming and buy more development kits. You think this is cheap or easy? DOS programs need no extras, and they work fine from one version to the next-no new learning, no new tools, And if you think this is all necessary so that programs can multitask well together, check out an operating system called Unix.

SCOTT BOWEN BOWENS@CUUG.AB.CA

#### Vendor Vice

Several mail-order computer sellers have reduced their warranties since you published "Direct 60" (July, page 160). At least two manufacturers have reduced their warranties from three years to one year after you gave them a four- or five-star rating. If a supplier advertises three years and/or is cited as giving three years, then your subscribers should get three years. I question the honesty of their intent in the first place.

Another issue: Maybe you should point out that the 30-day "return with money back" policy of most vendors is misleading, because some vendors charge exorbitant shipping charges. It doesn't cost \$84 to ship a computer and monitor, but that's what one vendor charges. This means I'm out \$84 plus return shipping-over 100 bucks-to return a defective purchase.

HUEY PLEDGER, JR. PANAMA CITY, FLORIDA

#### **Net Worth**

Why are we all arguing about America Online, Prodigy, and CompuServe? In vour September feature, "Online Fever" (page 140), you state that you can get a basic Prodigy membership for \$14.95 a month, which comes with five free hours. An additional hour would be \$3,60! All of the information you get on these online services you can get on just plain Internet! Here in Florida, I get unlimited access to the full Internet for only \$29 a month! There is no extra charge for more hours. Online services like Prodigy give you five free hours (which might sound terrific to you) just to get you addicted. Trust me, those five hours will go fast! And on the Internet, you can get twice as much as on

America Online, CompuServe, and Prodigy. So why pay such outrageous prices? SHAWN BERG

SHAWN.BERG@F32.N3619.Z1.FIDONET.ORG

I'D PAY for the online services rather than surf in cyberspace because they're better organized. Like PC Computing, these services filter out the noise and organize information so you can find it easily. Case in point, I did a keyword search on WWW for cat (as in tabby) and pet. I got some feline information, but most related to computer-aided tomography and proton-electron transfer, HB

#### Corrections

 In Ed Bott's November column, "Risky Business" (page 43), Risks Digest's address should be Usenet newsgroup comp.risks.

. In "Flex Your Finance Muscle" (November, page 88), M.Y.O.B. is not a direct competitor to Quicken, and the company's name is now BestWare.

• In "CD-ROM Drives Go IDE" (November, page 64), the correct company and product name is Philips CDD300

. In "Pick a Card, Any Card" (November, page 183), we did not test flash memory cards such as those made by SunDisk for data degradation, SunDisk maintains that the cards will maintain their integrity for decades. Also, the correct phone number for SunDisk is (408) 562-0500.

· Also in "Pick a Card, Any Card," 27 of the 28 cards we tested worked with Phoenix Technologies' PCM Plus 3.0 socket services software.

SEND YOUR THOUGHTS TO Mail PC Computing, 950 Tower Lane, 19th Floor, Foster City, CA 94404; fax us at (415) 578-7029; contact us via the Internet (72241.2451@compuserve.com) or CompuServe (72241,2451); or log on to PC Contact to post a public message (see page 308 for instructions). Letters must be signed and include a daytime phone number. If you contact us through e-mail, please include your phone number, city, state, and authorization to print your e-mail address. All letters become the property of PC Computing and will be edited for length and clarity. For technical questions, please send e-mail to CompuServe 76000,21.

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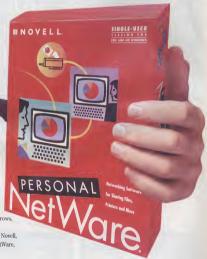
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makes a lot more sense. It not only lets you see what you're creating, it lets you group, organize and produce calculations by simply clicking on a graphical Smartlcon.®

And Approach features X10<sup>th</sup> query architecture which means blazing speed in organizing, analyzing and manipulating your database. As well as the highest-performance connectivity to virtually any database, including Paradox, dBase and Lotus Notes.<sup>80</sup>

#### IT'S EASY WITH 1-2-3

And Approach 3.0 extends the power of Lotus 1-2-3® allowing you to create intelligent forms, PowerClick reports, mailing labels and dynamic crosstabs on your worksheet without ever leaving 1-2-3.

Approach also offers advanced integration with Lotus Notes, the leading groupware application, making it the obvious choice for people who work together in groups.

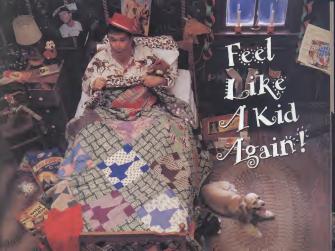
Approach is one of five integrated applications featured in Lotus SmartSuite.® For a limited time you can get Approach for \$129. Or get the entire SmartSuite upgrade for just \$299.\*\*

Call 1-800-TRADE-UP, ext. A337 today for more information. And ask your reseller about

volume purchase options through Lotus Passport.









Tim, age 8

"Oh boy, oh boy! I got it!
I got it! HOT DOG! Wait till
the gang sees this brand new
shiny P5-100XL machine
from Gateway 2000.

Jumping gigabytes! I feel
just like a kid again! I'm
even more excited than

when I got my Stream Line Electric train set back in 1958. I remember my brother Butch and I had a rootin' shootin' time making that train whiz around the track at lightening speeds. It was the most. But it can't compare to the powerhouse 100MHz Pentium processor-based system before me. It even has a quad-speed CD-ROM! I just wish Butch were here to see it. (Hey Butch, na na na na na -I got the most awesome computer in the world this year! How's the box of orange wool socks from Aunt Doris?) I think I'll invite Butch over to show off my new P5-100XL. We can watch full-motion video and hear stereo sound that rivals any home hi-fi with the ACS-31 speakers with subwoofer. I hear Gateway's multimedia features and software applications are more entertaining than watching Uncle Miltie. And I know if I ever have any questions about my new computer, the swell people at Gateway 2000 will always be there to help. Thanks Gateway, this has been the best holiday ever in the whole wide world!"





Just in time for the holidays, Gateway 2000® introduces the power-hungry user's dream machine — the P5-100XL. Make the day merry with a 100MHz Pentitum™ processor, 4X CD-ROM, and Gateway's new Vivitron™ color monitor using Sony® Trainitron® tube technology. We can't candy coat it…this is quite simply the best computer you can get today!

#### 100MHz Power Train

How could it be faster? It can't! The new Intel® 100MHz Pentium processor in Gateway 2000's P5-100XL is the fastest processor available today that still lets you run the most popular software applications. Imagine having everything on your computer running at full throttle! Previously only gound in high-end file servers, now you can have the unsurpassed power and speed of a 100MHz processor right on your desk.

## New 4X "Ouad-Speed" CD-ROM Drive

Twice the speed of a double-speed CD-ROM! You'll be way ahead of the game with the fastest CD-ROM technology available today on your PS-100XL Pentium processor-based machine. Gateway's 4X "quad-speed" CD-ROM and 100MHz of computing power train. And with a throughput of 600KB per second, the quad-speed CD-ROM is the only way you can have true full-screen, full-motion video today. All today's and tomorrow's softwar emplications fly, and video and animation at

smoother and cleaner. Gateway's quad-speed CD-ROM includes a motorized tray and is ATAPI compliant, something you'll need when Microsoft® Windows '95 comes along.

Gateway's New Vivitron Color Monitors!

For decades, Sony Trinitron technology has been the choice for millions who insist on only the very best. Now the best computer system in the world is paired with the best screen display in the world. Introducing Gateway 2000's new Vivitron color monitors. Using Sony Trinitron tube technology, these monitors give you the highest quality screen images available. Our 17-inch Vivitron monitor, standard with the P5-100XL, gives you brighter, richer, and crisper colors, a sharper focus and clearer image. With a 26 fine pitch, you'll also get an incredibly high screen definition.

The new Vivitron monitor is standard on all Gateway systems that include a 15-inch or 17-inch monitor.

# Microsoft Office Professional

This collection of Microsoft's most popular software applications is pre-installed on your Gateway P5-100XL. You get Microsoft Word, Excel, PowerPoints' presentation graphics program, Access® database, and Bookshelf® Bookshelf includes seven best-selling reference books that include The American Heritage Dictionary, The Concise Columbia Encyclopedia, and The World Alamanae and Book of Facts.







"I can't stand secrets. My husband and kids always hide my presents because they know I'll try to sneak a peek if I can. This year was no exception. I waited until they were all asleep, then padded down the

hallway, crept down the stairs, very quietly...vikes...remember the second step creaks! And...oh, wow, HOORAY! It's a Gateway 2000 P5-75 Family PC! I didn't care if the whole family heard me. Did I feel like a kid again? You bet! Suddenly I was back in circa 1965, when a tip-toe trip to the tree meant first having to free Fluffy's claws from the gold shag carpeting. Then while reaching for my Howdy Doody slippers, I was suddenly rendered blind by the glare of the silver tree, and I went crashing through the aluminum branches and piles of presents! I woke up the whole house that year. This year I soared through a billion applications in mere seconds with the 75MHz Pentium processor in that Gateway machine. I was sure the vivid colors of the new 15-inch Vivitron monitor were going to jump right out of the screen! My husband says the friendly salespeople at Gateway made sure we got the computer just right for us. The entire family can join in on my fun, because this powerful multimedia system

has something for all the 'kids' in this house!"





Your family's days and nights will be merry and bright with a P5-75 Family PC™ from Gateway 2000.®

This full-featured multimedia Family PC is an investment in your family's future with a super-charged 75MHz Pentium™ processor, and all the included software applications in our Home Bundle run faster than ever!

Family PC Power

Cruising at 75MHz

As your family grows and changes, this Pentium processor-based Family PC will always be in style. Power users are right at home with Intel® 575MHz Pentium processor and 730MB hard drive. For multimedia enthusiasts, a PCI local bus graphics card, double-speed CD-ROM, 16-bit sound card and Altec Lansing speakers are the coolest. And a TelePath™ fax/modem keeps everyone connected with the on-line universe. The Pentium processor lets you take full advantage of all these features and the many new generations of software applications. For tomorrow's multimedia superhighway, the PS-75 Family PC is your ticket to ride.

## A Bright New Outlook!

Your P5-75 Family PC also includes Gateway 2000's new 15-inch Vivitron™ color monitor. All your colorful images will now be richer and brighter with Sony®'s Trinitron® tube technology built into these new monitors.





"Get outta my way!"
"Watch out Shelly, you doorknob! It's mine!"
"No, Shawn, it's mine!"
"Ah, it's just like being kids again, Shelly,
Remember 1977? The presents, the fun,

"Ah, it's just like being kids again, Shelly, Remember 1977? The presents, the fun, and Dad's dumb leisure sutts? He'd always warn us, 'Kids watch out for that 8-track player, and don't touch your mother's shrine to Elvis!' We were so competitive, always fighting over each other's gifts. I'm glad we re all grown up ow, and we get alone so well. Seecielly since

other's gifts. I'm glad we're all grown up now, and we get along so well, especially since you finally stopped being such a spoiled brat."

"Whatever, Shawn, I'm still Mom's favorite, you buttface."
"Well, I guess Gateway 2000's ColorBook and Liberty
portable PCs have brought out the little hellions in us again.
But we just can't help fighting over them!"

"Shawn's in awe of the Liberty's incredible infrared wireless transfer capabilities — and a bunch of other HUGE features!" "And Shelly can hardly live with herself because she can't believe the great values on all ColorBook models."

"Gosh Shawn, isn't it nice to have Gateway 2000 here to make us feel like kids again?"

"Yeah, it sure is. In fact, Mom thought now would be a good time to tell you that we really adopted you from Martians."





# Liberty™ DX4-100 Best Buy

Liberate yourself! Introducing the new Gateway 2000® Liberty color portable PC! This 4.2-pound computer is positively loaded with almost-unheard of features, including a 10.4-inch color display and infrared technology allowing for wireless file transfer. Now you can transfer files between your Liberty and desktop PCs without cables to plug, unplug and lug around with you. Our top-of-the-line Liberty gives you 100MHz of computing comph combined with a removable 720MB hard drive and 24MB RAM for an absolutely incomparable portable performance and value!

# Liberty DX4-100 Best Buy

- 4.2 Lbs., 10" x 8" x 1.6"
- 10.4" DSTN Color Display
- 24MB RAM
- 720MB Hard Drive
- TelePath<sup>™</sup> 14.4 XJACK Fax/Modem
- Microsoft® Office Professional \$4799

# ColorBook™ 486SX-33 QuickShip\*

Quick! Make your (or someone else's) holidays brighter with a Gateway 2000 ColorBook — all models now priced at incredible values! You can have the ColorBook 4865X-33 QuickShipped to your door within 48 hours\* of ordering. And there's no reason to worry about that hard-to-buy-for person on your list. Everyone needs the colorful desktop performance of a Gateway ColorBook! Call today and ask about these and other great deals on Gateway portables.

## ColorBook 486SX-33

- 5.7 Lbs., 11.7" x 8.5" x 1.77"
- 9.4" DSTN Color Display
- 4MB RAM
- 250MB Hard Drive
- 96/24 Fax/Modem
- Carrying Case
- Microsoft Works

\$1799

\*48-Hour QuickShip program applies only to the ColorBook 486SX-33 configuration. Your PC will be delivered within two business days from the time of order. No additions or deletions can be made to the configuration. Available for approved credit card orders only. Domestic U.S. orders only.







"The warmth and fun of the holiday season is timeless. I guess with today's ultrabusy lifestyles, it's even more important to make memories and build traditions with family.

Well, as long as you can stand sitting through the kids' 75 verses of 'Jingle Bells' and Uncle Ricky always stopping by to borrow the nutcracker. But years from now, my wife Lily and I will sit down to watch our holiday videos, and after we fast-foward past the cat eating tinsel off the tree, we'll remember how excited little John and Mary were to open that huge cow-spotted box from Gateway 2000. For just \$1,899, Gateway gave us a fullfeatured multimedia system. And with all the great software titles pre-installed on our 4DX2-66 Family PC, Lily and I started feeling like kids too! Not enough to eat a whole tin of peanut brittle or anything, but we sure stayed up late that night exploring Microsoft Golf and Cinemania '95. Our Family PC has opened up whole new worlds for John and Mary, too. They've been entranced by MS Fine Artist, and Encarta multimedia encyclopedia. Lily and I are happy knowing that the fun and learning they experience with Gateway's 4DX2-66 Family PC will last them a lifetime."





The Gateway 2000% 4DX2-66 Family PC<sup>∞</sup> brings all the rewards of a fully featured multimedia system into your home at a price that defines "family values." Our Family PCs start from \$1,499 for the 4DX2-50 model and include a local bus graphics card, double-speed CD-ROM, 16-bit sound card and Altec Lansing speakers for a quality audio system. Listen to your music CDs, experience all the sights and sounds of the included multimedia software, and connect with people from all over the world through the standard fax/modem, including communications and on-line software.

#### A Cornucopia of Software!

An incomparable array of software is included with all Gateway 2000 systems — the most you'll get for your money..anywhere. All Gateway 486 and Pentium processor-based desktops are pre-installed with Microsoft® DOS® 6.22, Windows® for Workgroups 3.11, and now Microsoft Money. The Incomparable Home Bundle from Gateway

All Gateway Family PC configurations include our Home Bundle. This incredible collection of Microsoft software applications has literally everything your family needs to work, play and learn at home. You'll get MS Works, Encarta '95, Money, Cinemania '95, Golf and Fine Artist.

Microsoft Works 3.0 for Windows Multimedia Edition

You'll never need another software package for your home office. This program combines: a word processor, spreadsheet

with graphing, database, electronic communications, financial analysis, charting and illustration.

### Microsoft Encarta '95 Multimedia Encyclopedia

Learning is an adventure with text, images, animations and sounds that work together to create a fascinating universe of knowledge. Over 25,000 articles, 17,000 multimedia elements and the complete text of Funk and Wagnall's New Encyclopedia are included.

#### Microsoft Money 3.0

Now every Gateway desktop system includes Microsoft Money, your personal financial wizard that'll help you take control of your finances and plan for the future.

#### Microsoft Cinemania® '95

Explore the magic behind the movies with hundreds of reviews, biographies, photos and sound clips.

#### Microsoft Multimedia Golf

Traverse the wonder of Torrey Pines, consult a golf pro, and play a game of golf any way you please. You'll experience real sounds of chirping birds, swinging clubs and gurlgling water.

## Microsoft Fine Artist

Kids can create animated pictures and projects like posters and comic strips, and hear dozens of wacky sounds!





### Gateway 2000® Family PCsTM

#### 4DX2-50 FAMILY PC ■ Intel® 50MHz 486DX2 CPU\*

■ 4MB RAM ■ 340MB 13ms IDE Hard Drive

■ Local Bus Graphics with 1MB A Double-Speed CD-ROM, 16-Bit Sound Card & Altec Speakers

2400/9600 Data/Fax Modem 3.5" Diskette Drive

■ 14" Color SVGA Monitor Mini Deskton Case ■ 101-Kev Keyboard & Mouse

■ MS-DOS® 6.22 & WFW 3.11 MS Works.™ Encarta '95.

Money.™ Cinemania '95, Golf & Fine Artist 3-Year Limited Parts Warranty

# \$1499

# The Special Treatment Only From Gateway 2000

Gateway's friendly employees are dedicated to providing our customers with only the best service and support. We'll custom configure any system to your specifications. You also get toll-free technical support for the life of your system and a 30-day money-back guarantee. All Gateway 2000 desktop PCs and monitors are backed by a three-year limited warrany on parts. Call or write us and we'll send you a free copy of our warranty.





4DX2-66 FAMILY PC

■ Intel 66MHz 486DX2 CPU\*

Name of the Path TelePath TelePath

101-Kev Kevboard & Mouse

MS Works, Encarta '95, Money,

3-Year Limited Parts Warranty

Cinemania '95, Golf & Fine Artist

MS-DOS 6.22 & WFW 3.11

■ 14" CrystalScan® Monitor Mini Desktop Case

■ 3.5" Diskette Drive

\$1899

■ 8MB RAM

#### P5-60 FAMILY PC

■ Intel 60MHz Pentium™ Processor\* 8MB RAM, 256KB Cache

■ 730MB 13ms IDE Hard Drive 540MB 13ms IDE Hard Drive ■ Local Bus Graphics with 1MB ■ PCI Enhanced IDE Interface Nouble-Speed CD-ROM, 16-Bit ■ PCI Local Bus Graphics with 1MB Sound Card & Altec Speakers

Double-Speed CD-ROM 16-Bit Sound Card & Altec

Speakers TelePath II 14.4K Fax/Modem

3 5" Diskette Drive 14" CrystalScan Monitor

■ Deskton Case ■ AnvKey® Keyboard & Mouse

\$2099

MS-DOS 6.22 & WFW 3.11 MS Works, Encarta '95, Money, Cinemania '95, Golf & Fine Artist 3-Year Limited Parts Warranty

P5-75 FAMILY PC

■ Intel 75MHz Pentium™ Processor\* 8MB RAM, 256KB Cache ■ 730MB 13ms IDE Hard Drive

■ PCI Enhanced IDE Interface ■ PCI Local Bus Graphics with 1MB

Double-Speed CD-ROM 16-Bit Sound Card & Altec Speakers TelePath II 14.4K Fax/Modem

3 5" Diskette Drive

N 15" Vivitron™ Color Monitor ■ Deskton Case ■ AnvKev® Keyboard & Mouse MS-DOS 6 22 & WFW 3 11

MS Works, Encarta '95, Money, Cinemania '95, Golf & Fine Artist 3-Year Limited Parts Warranty \$2499

# P5-90 FAMILY PC

■ Intel 90MHz Pentium Processor\* ■ 8MB RAM, 256KB Cache 1GB 10ms IDE Hard Drive

PCI Enhanced IDE Interface PCI Local Bus Graphics with 2MB

Double-Speed CD-ROM 16-Bit Sound Card & Altec

TelePath II 14.4K Fax/Modem

■ 3.5" Diskette Drive 15" Vivitron Color Monitor

Deskton Case AnvKev Kevboard & Mouse

 MS-DOS 6.22 & WFW 3.11 MS Works, Encarta '95, Money, Cinemania '95, Golf & Fine Artist 3-Year Limited Parts Warranty

\$2899

# Professional Systems.

## 4DX2-50

- Intel S0MHz 486DX2 CPU\* ■ 4MR RAM ■ 340MB 13ms IDE Hard Drive
- Local Bus Graphics with 1MB Double-Speed CD-ROM
- 3.5" Diskette Drive ■ 14" Color SVGA Monitor
- Mini Desktop Case ■ 101-Key Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11 MS Works & Money

3-Year Limited Parts Warranty 4DX2-50 \$1299 4DX2-66 \$1599 (w/ 540MB Hard Drive & 8MB RAM)

# P4D-66

- Intel 66MHz 486DX2 CPU\* 8MB RAM, 256KB Cache
- 730MB 13ms IDE Hard Drive ■ PCI Enhanced IDE Interface
- PCI Local Bus Graphics with 1MB Double-Speed CD-ROM
- 3 5" Diskette Drive A 15" Vivitron Color Monitor
- Desktop Case AnvKey Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11 MS Office Professional. Bookshelf & Money

#### 3-Year Limited Parts Warranty \$1899

- Intel 75MHz PentiumProcessor\* ■ 8MB RAM, 256KB Cache
- 730MB 13ms IDE Hard Drive
- PCI Enhanced IDE Interface ■ PCI Local Bus Graphics with 1MB
- Double-Speed CD-ROM 3 5" Diskette Drive
- 15" Vivitron Color Monitor ■ Desktop Case
- AnvKey Keyboard & Mouse
- MS-DOS 6.22 & WFW 3.11 MS Office Professional.
- Bookshelf, & Money 3-Year Limited Parts Warranty \$2299

# P5-90 BEST BUY

- Intel 90MHz Pentium Processor\* ■ 8MB RAM, 256KB Cache
- 540MB 13ms IDE Hard Drive ■ PCI Enhanced IDE Interface PCI Local Bus Graphics with 2MB
- Double-Speed CD-ROM ■ 3.5" Diskette Drive 15" Vivitron Color Monitor
- Deskton Case AnyKey Keyboard & Mouse MS-DOS 6 22 & WFW 3.11
- MS Office Professional. Bookshelf & Money 3-Year Limited Parts Warranty

\$2499

- Intel 100MHz Pentium Processor\* ■ 16MB RAM, 256KB Cache 1 GB 10ms IDE Hard Drive
- PCI Enhanced IDE Interface ATI Mach 64 with 2MB VRAM
- Ouad-Speed CD-ROM 16-Bit Wavetable Sound Card &
- Altec ACS-31 Speakers w/ Subwoofer 3.5" Diskette Drive
- MS Office Professional, Bookshelf & Money 3-Year Limited Parts Warranty \$4299

17" Vivitron Color Monitor

■ AnyKey Keyboard & Mouse

MS-DOS 6.22 & WFW 3.11

■ Tower Case

Ask about our "90 Days No Payment'

Program



#### Easy Payment Options

Gateway accepts most major credit cards and C.O.D. terms, with net 30day terms and leasing options available to qualified commercial customers.

Gateway 2000 DuoLine™ MasterCard® card

You can apply for the Gateway 2000 DuoLine MasterCard card, issued by Dial National Bank, Des Moines, Iowa, Be sure to ask about our "90 Days No Payment" Program! The program ends December 31, 1994.



Celebrate the season with festive extras from Gateway! Gateway 2000 peripherals and software sold only with purchase of a system. Systems can be custom configured with the options listed below pre-installed.

# Multimedia

- Audio Starter Kit Here's everything you need to add multimedia to a Gateway PC.
- Gateway 2000 16-bit CD-quality sound card, compatible with Sound Blaster acards, with MIDI/game port, mic in, stereo line in/out
- 2 Altec Lansing ACS-5 speakers \$99 (with system purchase)

# Wavetable Audio Multimedia Kit

- Once you've heard wavetable audio, basic audio will never do!
- Ensoniq Soundscape 16-bit wavetable sound card, MT-32 and FM mode compatible. Supports most software for popular sound cards and standards

#### Altec Lansing ACS-31 Speakers

A Gateway exclusive from Altec Lansing: a three-piece sneaker set at a twopiece price. Two 3-inch free-standing speakers crank out up to five watts per channel while the subwoofer can deliver 15 watts of heart-pounding bass. \$99 (with system purchase)

\$60 (to upgrade from systems that include Altec speakers)

#### Multimedia Software Starter Pack

You get nearly \$700 worth of software for less than \$100! Package includes Mad Dog McCree, Tuneland, Mayo Clinic Family Health Book, Better Homes and Gardens Cookbook. The Lawnmower Man, Sitting on the Farm. Mavis Beacon Teaches Typing, Chess Master 3000, U.S. Atlas and World Atlas. You also get a compact disk cleaner and 20-disk storage rack. \$75

Call and ask about flight pack software including some of the latest flight titles from Gateway.



#### Monitor

#### New Gateway 17-Inch Vivitron™ Color Monitor

Non-interfaced color monitor using Sony® Trinitron® tube technology, capable of 1280 x 1024 resolution in non-interfaced mode, .26 fine pitch. Upgrade from a 14-inch CrystalScan® 1024NI monitor \$360 Upgrade from a 15-inch Vivitron 1572 monitor \$260

# Communications & Storage

Internal fax/modem, 14,400bps modem, V.32bis, with 14,400bps fax capability.

Includes data and fax communication software, CoSession<sup>78</sup> Host remote diagnostics, plus a CompuServe<sup>88</sup> trial membership. \$99

### Colorado Memory Systems® TBU

250MB internal tape backup unit copies up to 9.5MB per minute. Comes with Microsoft® Windows™ and DOS® software, one tape and cable. \$149

# Printers

# Epson® Stylus™ 800+ Ink Jet Printer

Get the look of a laser at a dot matrix price with the Stylus 800+. Prints 165 characters per second at 360dpi — fast and quiet! Includes parallel cable. \$219

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#### Epson ActionLaser 1100 Laser Printer

Get advanced laser printing at a personal laser price. Features include edgesmoothing technology for incredible sharp printing of text and graphics, 22 fonts and IMB memory. Includes narulel cable. \$459

#### Epson Stylus Color Ink Jet Printer

A high-quality color printer at an affordable price! Features 360dpi or up to 720dpi using specially coated paper. Exclusive technology eliminates "featherine."

Includes parallel cable. \$529

#### Hewlett®-Packard 4L Laser, Jet Printer

A full-featured 300dpi printer loaded with enhanced PCL 5 and 26 scaleable typefaces with 1MB standard HP Memory Enhancement Technology. Includes parallel cable. \$699

# Hewlett-Packard 4P LaserJet Printer

A 600dpj printer for four times the dots of 300dpj laser printing with enhanced PCL 5 and 45 scalable typefaces. 2MB standard memory and 3 universal SIMM slots available for additional memory or PostScript fonts. Includes parallel cable. **5999** 

Call for other printer options, including more Hewlett-Packard printers.

Call the Gateway 2000 special component add-ons division at 800-846-2080 for our complete line of extras for Gateway customers.

Sales hours: 7am-9pm Weekdays.



#### GATEWAY 2000 LIBERTY™

- 4.2 Lbs., 10" x 8" x 1.6" ■ 10.4" DSTN Color Display ■ Infrared Capability
- Intel® 486, DX2 or DX4 Processor
- NiMH Battery & AC Pack Removable Hard Drive 2 PCMCIA Type II Slots
- EZ Point™ Integrated Pointer ■ 78-Key Keyboard ■ Parallel, Serial, VGA & PS/2®
- Ports ■ Microsoft® Works for Windows¹
- 3.0 or MS Office Professional ■ MS-DOS® 6.22 & WEW 3.11

- LIBERTY DX2-50 10.4" DSTN Color Display
- 8MB RAM
- 340MR Hard Drive
- MS Works \$2799

# LIBERTY DX4-100

- 10.4" DSTN Color Display
- 8MB RAM 540MB Hard Drive
- MS Works \$3499

# LIBERTY DX4-100

Best Buy 10.4" DSTN Color Display 24MB RAM

720MB Hard Drive

■ TelePath™14.4 XJACK Fax/Modem MS Office Professional

\$4799



# SL Enhanced Intel 486 or DX2

- 10.3" or 9.4" DSTN Color Display
- 4MB or 8MB RAM (Expandable)
- to 20MB)
- 5.7 Lbs., 11.7" x 8.5" x 1.77"
- Removable Hard Drive 3 5" Diskette Drive
- NiMH Battery & AC Pack
- Suspend/Resume Feature ■ 2 PCMCIA Type II Slots (1 Type III)
- Integrated Trackball (2 buttons) ■ 85-Key Keyboard
- Parallel Serial PS/2 & VGA Ports MS Works 3.0 or MS Office
- Professional 4.3 MS-DOS 6.22 & WFW 3.11
- Carrying Case

# COLORBOOK 486SX-33

- 48-Hour OuickShip\* MAMBRAM
- 250MB Hard Drive
  - 9.4" DSTN Color Display MS Works 96/24 Fax/Modem
  - \$1799
  - COLORBOOK DX2-50
  - 8MB RAM
  - 340MR Hard Drive 10.3" DSTN Color Display 96/24 Fax/Modem MS Office Professional
    - \$3149







Ask about our "90 Days No Payment" Program

#### LIBERTY OPTIONS

- Extra NiMH Batteries \$99 Each
- 4MB RAM Upgrade \$249 ■ 16MB RAM Upgrade \$899
- Extra AC Adapter \$65 ■ Carrying Case \$79 ■ External Floppy Drive \$109
- Extended VIP Warranty, We'll ship a replacement notebook within 24 hours during the warranty period. Must be purchased at point of sale. \$100

#### PCMCIA Cards N TelePath™ 14.4 Fax/Modem \$149 TelePath XJACK® Fax/Modem

- External Tape Backup Unit \$295
- Token Ring Adapter \$449
- BNC Ethernet Adapter \$159
- Twisted Pair Ethernet adapter \$129

\$300

- Liberty Traveler's Pack ■ External 3.5" Diskette Drive
- PCMCIA TelePath XJACK
- 14.4 fax/modem Extra NiMH Battery ■ Leather Carrying Case

#### Liberty Professional Pack

- Microsofr® Office Professional ■ PCMCIA TelePath XJACK
- 14.4 fax/modem ■ Extra NiMH Battery
- Leather Carrying Case \$449

# Liberty Combo Pack

■ 124-Key AnyKey® Keyboard, 15" Color Monitor, Microsoft Mouse and Gateway Cow-Spotted Mouse Pad. \$449

#### COLORBOOK TM OPTIONS

- Extra NiMH Batteries \$119 Fach
- 4MB RAM Upgrade \$249
- Extended VIP Warranty. We'll ship a replacement notebook within 24 hours during the warranty period. Must be
- purchased at point of sale. \$100 PCMCIA Cards TelePath 14.4 Fax/Modem \$149
- TelePath XJACK Fax/Modem \$159
- BNC Ethernet Adapter \$159 ■ Twisted Pair Ethernet adapter \$129

- External Tape Backup Unit \$295
- Token Ring Adapter \$449
- ColorBook Traveler's Pack Includes extra NiMH battery:
- With PCMCIA 96/24 fax/modem. Includes fax and communications software \$219
- With PCMCIA TelePath XJACK 14.4 fax/modem \$279
- ColorBook Combo Pack
- 124-Key AnyKey Keyboard. 15" Color Monitor, Microsoft Mouse and Gateway Cow-Spotted Mouse Pad. \$449

# SERVICE AND WARRANTY

- support.
- Lifetime toll-free service and One-year limited parts warranty. 30-day money-back guarantee.
- Special VIP warranty we ship replacement to you within 24 hours during warranty - is available at the time of purchase for an additional \$100.



# Happy Holidays From All Your Friends At Gateway 2000!

A final bow from the Gateway 2000 employees and family members who acted like kids for this adl Thanks Cowboy Jim (Public Relations), Leisure Suit Joe (Customer Services), Elizabeth a.ka. "Shelly" (Creative Services), 58 hawn (Creative Services), 50s Ida (Accounting), '90s Dad Rusty (Marketing), his wife Lil, and kids Caneel and Danny.













610 Gateway Drive \* P.O. Box 2000 \* N. Sioux City, SD 57049-2000 \* Phone 605-232-2000 \* TDD 800-846-1778 \* Fax 605-232-2023 \* FaxBack 800-846-4526 International FaxBack Access 605-232-2561 \* Component Add-On Sales 800-846-2080 \* Sales Hours: 7am-10pm Weckdays, 9am-4pm Saturdays (CDT)





As usual, Team Dennis Conner is well in front of the competition. But then, they have a history of firsts. In 1980 it was the Kevlar sails. In 1987, an innovative hull surface. In 1988, a sail that looked like an airplane wing. All of which resulted in America's Cup victories.

Of course 1995 should be no exception. Because D.C. has a new secret weapon. Microsoft® Excel 5.0.

With the leading spreadsheet for Windows," Conner's design team has the flexibility — and power — to calculate

the results of thousands of test factors to determine an ideal boat design. Make the wrong choice and his team spends the rest of the race fooking up somebody's boom. (Sound like your business?) Make the right choice and they're ten seconds faster than the next guys.

That's where IntelliSense' technology comes in Like any good team member it knows what to do before it's asked, making tough jobs easy. And simple jobs automatic. So analysis tools like Pivot Tables can quickly turn a sea of data into

# HOV CAN HE DSE

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HE'S ALREADY

12.5 SECONDS

AHEAD IN JANUARY

useful information, and help you see what the other guys miss. The shortcuts.

To put a little distance between yourself and the competition, call (800) 240-4782 Dept. XOV, and we'll send you information on Microsoft Excel 5.0 and the other programs that make up our winning team of Office applications.\* After all, the race you're running probably isn't much different than Dennis Conner's. Because in the end, the only thing that matters is being at the last buoy first.





Phone Home: PDAs become more compelling as the communications infrastructure over which they send sound files, faxes, e-mail, and pages becomes widespread.



Give 'Em a Spin: Over the past year, sales of

CD-ROM drives have risen by leaps and bounds. Anyone in the mood for a quick round of Myst?



Size Counts: Graphics, video, and audio files push the majority of consumers into larger drive classes each year. Bloated applications haven't hurt this trend either.

READY FOR PRIME TIME?

# PDAs Get Networked

You know the bad news about personal digital assistants: They're either underpowered, unconnected to your desktop, lack phone and fax components, or can't read your handwriting—sometimes all four. The perfect PDA combines

fax, smart phone, live news updates, and walk-about PC for info workers who have to perform on the go. Make a few notes, and your electronic pal stores them—or handles your stocks or makes a plane reservation. But so far, few users have been scribbling and sending faxes from the back seats of cabs.

The PDA-using ranks could swell soon thanks to new object-oriented software and hardware. Early reports say that Palm Computing's \$79 Graffiti software recognizes handwriting well enough to avoid ridicule in Doonesbury. And powered by new 3.3-voit processors and lithium-ion batteries. PDAs are hooking



What Do You Get... when you cross a PC with a cellular phone? Palm-sized PIMs that dial anywhere, of course.

up to PC Card add-ons to expand memory and storage.

The missing link? Communications. Fax, e-mail, paging, and remote access to PCs have all been wanting up till now (except for BellSouth Cellular's phone/fax/e-mailer, Simon). Sony's new Magic Link and Motorola's Envoy change that.

The one-pound Magic Link combines a fax modern, infrared ports, PC Card sockets, and a PIM. The problem? It needs

phone lines. Envoy will be pure cellular when it ships.

Both PDAs lean heavily on telecommunications and e-mail services from ATER'S Persona-Link Services from ATER'S Persona-Link Services network. This backbone service, coupled with software net agents developed in General Magic's Magic Cap revironment, is giving the PDA market a rosy sheen. And special add-ons give even the Newton access to the same tools.

PDAs are not about to

# UPDATES

# **Best Bets and Bargains**

JUST MY TYPE II
Two new MobileMax
Lite hard disks cram
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MicroHelp is currently offering a \$99 bundle that can't be beat: Uninstaller, 1st Act, Managing Your Money, FaxWorks Pro, and Emergency Disk. Contact MicroHelp at (800) 922-3383.

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\$99 VALUE PACK

SCSI TIMES TWO
AdvanSys's Advan
SCSI VL Dual VESA
adapter supports
dual-channel SCSI to
run up to 14 devices
(\$479 list, \$699 for

RAID server version). Contact AdvanSys at (408) 383-9400 Reader Service No. 603 LOTUS FOR OS/2 SmartSuite 1.1 users can get the applaunching, utilitypacking SmartCenter for shipping and handling costs before the new SmartSuite for OS/2 ships this month.

#### Useful Software for Scanners

supplant cellular phones as the executive gadget of choice for some time, but the modular upgrade path and network connectivity look promising. MH

Info Edge Just how useful can you make a low-cost scanner? With a slew of new info-crunching software, we say "very." Visioneer's PaperMax scanner has just acquired front-end links to your fax modem. A filing-cabinet software Page-Keeper is poised with a new release, followed by a similar offering from Umax. MI.

New Priorities According to the latest J.D. Power and Associates' PC buyer satisfaction surveys, reliability was last year's big thing. Apparently, market-share wars over the past couple of years have eroded product quality: User support was the No. 1 factor driving customer satisfaction in 1993. and 1994's poll-topper, reliability, reinforces the message. Who's getting it right? Hewlett-Packard rated highest in customer satisfaction, followed by Digital, Compag. Dell, Gateway 2000, and Apple. MH

Graphic Reductions The upward spiral of 32-bit to 64bit to 128-bit graphics is poised to meet falling costs. How? Redesigned boards require fewer components. Western Digital has combined graphics acceleration, motion video scaling, color conversion, and a 24-bit RAMDAC into a single chip, the new RocketChip WD9710. Meanwhile, Rambus's high-speed DRAM designs have reduced components enough to attract the attention of NEC, Toshiba, and others. Lower cost, lower power usage-can't be bad, ML

# Send Overnight, Track Online

When it absolutely, positively has to be tracked from your desktop, Federal Express's no-cost client-server software does it. FedEx Ship for Windows, your PC, and a 14.4Kbps modem will track billing and shipping toll-free. FedEx houses the server for parcel pickup, verification, and tracking, and the software even prints billing statements. RS

FedEx Ship for Windows / Federal Express / (800) 238-5355 / Free / Reader Service No. 605

#### Flathed Scanners

Scanning for the best prices? These models offer TWAIN compliance, 300-dpi resolution, and software. Prices are as of October 26, 1994.

Product Price

Microtek ScanMaker IIG \$425 MidWest Computer Works (800) 869-6757

P Scanlet 3p \$499 Harmony Computers (800) 441-1144

Umax Technologies UC630 \$519

Digital Axis Int'l., (800) 269-9666

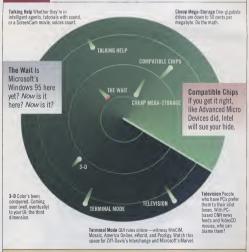
Relisys AVEC Colour 2400 DPI \$529

HDSS Computer Products
(800) 252-9777

Mustek Paragon 600 \$533 Multiple Brand Superstore (800) 944-3808

Reader Service Numbers: MidWest 606; Harmony 607; Digital Axis 608; HDSS 609; MBS 610

# RADAR WHERE ARE THIS YEAR'S SOFTWARE UPGRADES?



What's on the Scope? If it's near or moving toward the middle, pay attention to it.
If it's moving off the screen, forget about it for now, Your time is too valuable. RN



# Take It with You

You've shaved pounds off your carry-on luggage with featherweight subnotebooks, tiny power bricks, and longlasting batteries. Want to add ten pounds of portable printer and scanner? Of course not. But that's no excuse for doing without hard copy or an input device for your fax modem.

Mustek's recent release of a PC Card Type II grayscale hand scanner seems like nothing new, but it is: The Plugand-Scan 256 is a 5-volt "green" scanner that uses less than half the juice of a regular device. The result? It works off your subnote's batteries. TWAIN support and bundled Perceive Personal software provide the fax front end. For even less space, try a penshaped parallel scanner from I.R.I.S. or Primax.

Output? Try the one-pound Pentax Pocketlet, a 3-ppm, 300dpi serial or parallel printer. Its direct thermal printing needs no supplies except coated paper. And on a 70-minute charge, it prints dozens of pages. The as-vet-unannounced Citizen AmericaPN60 promises to weigh in about the same, but that's all we know, ML

Plug-and-Scan 256 / Mustek / (800) 468-7835 / \$249 / Reader Service No. 611 Datapen / I.R.I.S. America / (407) 395-7831 / \$399 / Reader Service No. 612 Datapen / Primax Electronics / (800) 338-3693 / \$399 / Reader Service No. 613 Pocketlet / Pentax / (800) 543-6144 / \$499 / Reader Service No. 614

# Long-Term Memory (Management)

Reports of the demise of memory management software have been greatly exaggerated. Windows 95 promised to do away with it, but that prospect is a long way from reality. The Windows 95 upgrade will go onto existing systems-legacy hardware and all. To delay hardware upgrades, that twovear-old CD-ROM drive or scanner better

stay in place, even if the manufacturer is out of business and you have to make do with the old real-mode driver. A few of these devices in your system, and the neighborhood below the 640K mark is just as overpopulated as ever. So don't recycle the site licenses to NetRoom, QEMM, or 386Max just yet. YL

Conventional Memory Total:	640X	
Available:	599K	
	614160	лусов
Extended Memory		
Total:	3072K	
Expanded Memory (EMS)		
	4.00	
Page Franc Address:	CCBSH	
Available:	1024K	

WINDOWS 95 DISK UTILITIES

In a mad pre-Com-

dex rush, Micro-

# File Management without File Manager

soft shipped out WATCH more than 20,000 copies of the second beta release of Windows 95 last November. The latest release includes a first look at protected-mode disk utilities that eliminate the need to drop back to a DOS prompt to do routine disk maintenance. Built into Windows 95 are a graphical version of ScanDisk (beefed up to handle long filenames) and a disk optimizer that defragments your disk in the background as you work.

Under the hood there are several subtle fixes for one of the Windows limitations that drive Windows 3.1 users batty: a lack of solid links between a document and the application that created it. The Macintosh does it, OS/2 does it, but DOS and Windows 3.1 use threeletter file extensions to crudely track "associations" between documents and applications. What happens when Word-Perfect and Word both lay claim to files with the extension DOC? War of the words.

Windows 95 still uses file extensions to track document/

application links. But with longer filenames, applications can also use longer extensions. means an application can create filenames with a default extension that includes detailed information-"January 1995 Sales Forecasts, 123 Release 5 Worksheet," for example. Because Windows 95 hides registered

file extensions, you

may never know about the extension. But if your application is aware of this feature. it can act more intelligently than an older Windows 3.1

This solution earns points for cleverness, but it's admittedly a kludge with none of the elegance in the Macintosh's ironclad application-tracking system. The Windows 95 architects argue that this solutionkludgy or not-is the best way to solve the problem without creating compatibility problems with older programs.

Our take on the matter: Don't expect to see a payoff from this feature too soon. Application developers have to build it into their Windows 95 releases. And while they're at it, they can fix another longstanding Windows nightmare with another Windows 95 feature: an Uninstall utility built in at the system level. EB

Contributors to Pulse: MIKE HOGAN, ED BOTT, KYLA K. CARLSON, RICHARD SCHWERIN, YAEL LI-RON, JAMES OLIVER CURY, AND MIKE MCGUIRE. Edited by MATTHEW LAKE.



Disky Business: Windows 95 adds real-time defragmentation at last.

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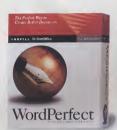


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#### The New HP ScanJet Scanners

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### Paul Somerson

# I Spy



In the late 80s, Aldrich "Rick" Ames, the infamous CIA agent who sold out to the Russkies, starts arriving at work in clothes more appropriate for a banker than a bureaucrat, and NOBODY CARES. He flies to Switzerland to stash a million bucks, and NOBODY NOTICES. He plunks down cash for a new Jaguar, new teeth, and a new house, and NOBODY RAISES A FUSS. So what finally trips him up? His root directory.

In 1993, Ames and his CIA boss attend a conference in Turkey. Ames brings along a note-book PC packed with computer games... and megabytes of PURLOINED GOVERNMENT SECRETS. His boss asks to play one of the games, and when he looks to see what's on the hard disk, just happens to notice a file named for Rick's Russian contact along with tons of CLASSIFIED INFO. Ames is nabbed.

(Funny thing—if Ames had known how to use certain features in DOS a little better, the guy could be dining tonight on Pate à Choux rather than prison chow.)

Nobody's going to grieve for Ames, who deserves what he gets. But every day, naive businesspeople end up getting grief they don't deserve. Their PCs may not contain official secrets, but somewhere on their hard disks are sensitive files like business plans, personnel records, resumes, and personal letters or financial information THEY'D RATHER NOT SHARE. And if they're as lax about locking it all up as Ames was, they're asking for trouble.

Trouble is, we all have too many bank and online passwords and PIN numbers already. We don't want more. And yet we lock our desks and file cabinets but think PC PASSWORDS ARE A NUISANCE and don't use them. Or pick

obvious ones like our first names or phone extensions. We casually reveal them when coworkers need to retrieve files. Or write them down on Rolodexes or yellow Post-it notes stuck to our monitors. Or leave our systems wide open when we walk away.

And we almost never modify them. Quick test—if you use a password, when's the LAST IIME YOU CHANGED IT? If it's more than a month or two, you're hosed. (For details on protecting yourself, see "Lock, Stock, and Password," on page 202 in our newly revamped Help section.)

Worse, users can easily be lulled into a false sense of security because of these flimsy passwords, and use DOPEY EASY-TO-SPOT FILENAMES like SALARY:DOC or BUDGET95-WK4. And they never conceal or encrypt anything, no matter how sensitive. All Ames had to do was hide the dangerous data and subdirectories with the DOS ATTRIB +H command, which, like a cheap lock, will KEEP THE HONEST PEOPLE OUT.

Users sometimes think it's so hard to locate itiles on their own hard disk that they figure a snooper will be even more confused. Wrong. You don't have to be a CIA agent to bust into most systems and walk off with megabytes of vital data. Hey—how do you know it hasn't happened to you already?

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# RAZOR'S EDGE

The official story: Microsoft has announced the launch of the Microsoft Network, a worldwide online service. The graphical interface and communications protocols for the new venture will be built into Windows 95. due to reach the market in the first half of 1995. The service entered its initial beta testing phase in late November 1994.

The Inside Story OK, its ill-kept secret name is Marvel. But insiders say there's no way that internal code name will leak out of the Redmond labs and land on a shrinkwrapped box, á la IBM's OS/2 Warp, Version 3. That's because Marvel Comics. owner of the Marvel trademark, has already had its legion of lawyers fire off "Don't even think about it" letters to Microsoft. When that request is backed up by real muscle-like The Amazing Spider-Man, the Incredible Hulk, and the X-Men-even Bill Gates takes it seriously.

So call it the Microsoft Network instead. Marvel/MSNet follows the No. 1 rule in the King Gillette Big Book of Marketing: Give 'em the razors, sell 'em the blades. In this case, the razor is the Marvel client software, which will be built into every shrink-wrapped copy of Windows 95, And the blades? Well, Microsoft is betting that there are millions of people who want something more powerful than Prodigy, more organized than the Internet, and more interesting than CompuServe.

How Does Marvel Work? Think of the Microsoft Marvel Network 95 as a cross between Windows 95 and the World Wide Web. The interface should be indistinguishable from the new Windows shell: You'll be able to use the Windows 95 Explorer to browse e-mail, MS Network forums, and file libraries. To get to favorite places, you'll be able to create instantaccess icons right on the Win95 desktop.

When you double-click on one of those shortcuts, you might wind up in a graphical window that looks surprisingly like a Web page. There's no official word as to the format that these pages will take, but it's reasonable to assume that Marvel will use some variant of HTML, the Web's lineur franca. If that's true, then you can expect support for all sorts of multimedia data.

Initially, the service will be available only over dial-up lines, at speeds of 9,600 bps and up, Eventually, Microsoft plans to pump data into homes and offices at much higher speeds via cable TV and ISDN.

Microsoft is

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millions will

service more

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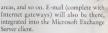
CompuServe.

INTERESTING than

If MarvelNet were just another Compu-Serve clone, we could all yawn and move on. By building the client software right into the next generation of Windows, though, Microsoft has dealt itself a pair of aces, First, both ends of the connection are graphical from the ground up. Anyone providing content for an MSNet service doesn't have to worry about making it look good in a characterbased terminal emulation program, the way Compu-Serve does, Second, the host knows for certain which operating system you're running, so it's able to build its own high-speed communications protocol right into Windows. That makes it easy for the host to carry on

a two-way conversation with the client. What's Out There? What can you expect to find when the Microsoft Network officially opens for business?

Naturally, it will be full of all the CompuServe/America Online/Prodiev checklist items; forums, file libraries, chat



Microsoft also wants you to have lots of opportunities to spend your hardearned digital cash online. The business model for the MS Network depends on third parties selling goods and services over the wire. Microsoft will handle the transactions from its data center in Bellevue, Washington, taking a percentage of each transaction for its trouble.

But the real winner is likely to be just across the campus in the applications division of Microsoft. With its own enormous, proprietary online network, Microsoft gets instant competitive advantages in tech support and delivery.

Theoretically, tech support gets a lot simpler and more effective

thanks to Marvel, When you're having a problem, click a button, fill in a questionnaire, and jack in. Instead of asking you to fire up Notepad and read your SYSTEM.INI file, a support engineer pokes around in your machine, fixes the INI file on the fly, and updates drivers as needed.

In fact, if you carry that scenario one step further, it's easy to imagine dial-up connections replacing Egghead Software and CompUSA as the way to buy Microsoft software. Upgrades appear on your hard disk automatically, as long as you're willing to pay for them. Instead of \$129 for the latest Word

or Excel, why not pay \$9.95 a month for a subscription to your favorite app?

There's no guarantee that this scenario will actually come to pass. But there's also no reason it can't. If it does, maybe Marvel will get another name change, to The Microsoft Channel.

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-PC World Best Buy, August 1994

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Package 1	Package 2	Package 3	Package 4
486SX-33 \$1395 486DX-33 \$1495 486DX2-66 \$1545 Pentium-60 \$1845 Pentium-66 \$1995 Pentium-90 \$2145 Pentium-100 \$2595	4865X-33 \$1695 486DX-33 \$1795 486DX2-66 \$1845 Pentium-60 \$2145 Pentium-66 \$2295 Pentium-90 \$2445 Pentium-100 \$2895	486SX-33 \$2195 486DX-33 \$2295 486DX2-66 \$2345 Pentium-60 \$2645 Pentium-66 \$2795 Pentium-90 \$2945 Pentium-100 \$3395	4868X-33 \$2595 486DX-33 \$2695 486DX2-66 \$2746 Pentium-60 \$3045 Pentium-66 \$3195 Pentium-90 \$3345 Pentium-100 \$3795
MB RAM     214MB local bus IDE     hard drive with 52K cache     \$55* 1.44MB floopy     disk drive     Plamond Stealth     64-bit PC I local bus SVGA     color graphic card with     MB DRAM     2EOS 14* 1004 x 768     both interhead SVGA color monitor, 28mm dot pitch     Six-boy desktop case with two cooling facts     both cache     Six-boy desktop case with two cooling facts     Microsoft Mouse     MS-DOS 62, Windows     for Workgroups 3.11	> 8MB RAM > 28MB local bus IDE hard drive with 256K cache > XC OT-ROM drive and 357 144MB floopy drive > Diamond Stealth 64-bit PCI local bus NVGA color graphics card with 1MD BRAM > ZEOS 14* 100.4 x 768 non-intered SVGA color monitor, 28mm dot pitch vo coding sky dos Misrosel NVGA color since of NVGA color monitor, 28mm dot pitch > Nich by deskip case with two coding sky NS-DOS 64, Windows for Workgroups 3.11	> 16MB RAM > 70MB local bus IDE hard drive with 128K cache > 2X CD+80M drive and 35: 144MB Ropy drive > Diamond Stealth 64-bit PEI Dead has NGA color graphics card with LMB BRAM > ZEOS 15" 1024 x 76s non-inferhead SVGA color monitor, 28mm det pitch wo coloring mm det pitch wo coloring som det pitch wo coloring som Microsoft Mouse > Microsoft Mouse   Microsoft Mouse   Sub-Dob SG, Windows   for Workgroups 3.11   South SM ST   SG   SW midrows   for Workgroups 3.11	> 24MB RAM > 1GB local bus IDE hard drive with 256K cache - 43 CD-ROM drive and 35° 144MB Rhoppy drive > Diamond Stealth 64-bit PCI local bus SVIA color graphics card with 1MB BRAM > ZEOS 15" 1024 x 768 non-interhead SVIA color monitor, 28m do from do pitch wo coloring fans > Microsoft Musse > Microsoft Musse > Microsoft Musse > Lotus SmartSuite > Lotus SmartSuite

Favorite Options	
528MB to 1GB Hard Drive Upgrade	\$245
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Diamond Stealth 64/PCI Video Card with 2MB VRAM Fastest 64-bit accelerated video	\$249
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### John C. Dvorak

# FREE THE CODE



ometime this year, Microsoft will roll out Windows 95 and hopes to phase out the DOS operating system. Novell has pretty much given up selling the old DR-DOS, and I suspect that IBM will eventually port its OS/2 VDM code and turn that into a DOS, but it, too, may just give up DOS as it moves into the PowerPC realm.

Essentially, DOS is dead.

There are probably 250 million or more machines running DOS, yet it's dead. But does it need to die just because Microsoft says so? How about letting the users control its destiny? I want to suggest that Microsoft, IBM, and Novell-individually or collectively—place the source code for DOS into the public domain so it can be further supported and improved by the users.

If Microsoft does this, it would generate more goodwill than anything imaginable. It shouldn't hurt sales because DOS is declining by the minute, and this is a good way to end the slide and turn support over to user groups that will work on the code. The fact is that older machines are still being used in developing counties, and the new benefits derived from an improved DOS would encourage people to eventually upgrade with a positive attitude rather than feel they've been let down by Microsoft.

If Microsoft won't do it, then Novell ought to, It would eliminate the vestiges of Microsoft's once-lucrative DOS cash cow, because only a morotic company would thereafter license MS-DOS for its low-end computers. And it would make Novell DOS the new standard since everyone would use the public-domain versions as they were beefed up by companies such as JP Software (4DOS) and others that would invariably improve the code.

Revenge and Goodwill If Novell won't do it, then IBM should—if only to a govern the state of the

and would greatly benefit users. In fact, all companies with orphaned products should seriously consider releasing the source code to the public domain.

I discussed this with Robert Carr, the talented developer of the PenPoint operating system developed for Go Corp.
AT&T bought Go and folded its tent shortly thereafter. As far as Carr knows, AT&T has the code for the operating system in some file cabinet.
When I asked if he would Companies with

**ORPHANED** apps

should CONSIDER

releasing the

SOURCE code

to the PUBLIC

domain . . .

or Novell

should FREE

the DOS CODE.

Microsoft, IBM,

When I asked if he would mind if his code were released to the public domain, he said it was a great idea. When code languishes too long in the file cabinet, it becomes worthless, he said. Whatever the case. AT&T has control.

A Plea AT&T should release the code to the public domain. Will someone at the company please make this happen?!

There are many examples of good products that have been abandoned for marketing reasons. Sales were sluggish, support costs too high. Whatever. Lotus's Magellan comes to mind. Again, here's an

opportunity to do the public a favor withour hurting company sales one iota. Lotus should also do the same with its oddball Agenda program, which seems to have disappeared. Magellan was an interesting fuzzy-search engine used to maintain a hard disk full of forgotten files. I've never fully understood what Agenda was, but people liked it. There's no reason Lotus couldn't release the code.

Companies create a lot of ill will when they market a product with a lot of fanfare, then bail out. The masses may not warm up to the software, but a few loyal users will always emerge. These people believed the company would maintain and improve the product. The company let them down and then didn't even create an alternative product or avenue for continued development. In short, the user is screwed.

Angry Customers I don't want to single out Lotus, but it seems to be adept at this. Besides Magellan and Agenda, Lotus Express, Improv, Symphony, and Jazz come to mind. Elsewhere, good word processors are left to die—spreadsheets (even Microsoft's MultiPlan), utilities,

telecommunications programs, database managers (will Symantec ever do anything with Q&A?), graphics packages, you name it. Orphans. Angered customers. Lost code.

The work that went into original code is valuable and represents a resource for everyone. To let it languish in a file cabinet is an inexcusable waste. I beg all software companies to turn such code over to the public domain. Please. It will invigorate the industry and make you even richer. Let's start with DOS.

ODE.

If you've ever had to stifle
your desire to scream "John,
you ignorant slut," here's
your chance to debate Durnak one-on-

one. On the new PCC CD, you can match wits with the dean of computer punditry in the world's first interactive column. For information on ordering the disc—which also includes multimedia product reviews, animation, and more—see page 314.



# THE WORLD'S BEST SELLING MODEM IS NOW PCMCIA PORTABLE.

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Circle 102 on reader service card.



January is the time for reevaluation, and I find myself filled with all the proper emotions right on schedule. Chief among these are shame and regret, followed closely by determination. How much more admirable I would like to be in the year to come! And not in the relations between myself and my fellow humanity, either. No, it's things

between me and my computer I'd like to fix. As a public service, I lay bare my foibles in the hopes that my humiliation may serve the greater good:

No more buying of CD-ROMs I never really use. That's right, I'm going to be real aggressive about this and either cut out the indiscriminate purchasing of discs or use them to their fullest potential. Right now, I'm planning on devoting the rest of the month to The Lawnmower Man, Myst, and Wrath of the Gods. All of these, among others, have installed their operating detritus on my hard drive, where they are taking up precious bytes for, at this point, no discernible reason. The fact that I am totally bogged down in each of them makes this a tough resolution to keep without weeping, but I'm determined. After I've completed these, I intend to listen to Stravinsky's The Rite of Spring all the way through and compile an interesting report on something arcane using my Compton's Interactive Encyclopedia and Microsoft Encarta in a serious way for the very first time.

Perfect my online persona. I'm geminely ashamed at the amount of time live spent this year engaging in the lowest levels of discourse with people with whom I wouldn't share my spare sweat socks. Much of this conversation—and I use the word in the broadest sense—has been at the office, where people are starting to suspect my dedication to productivity. The other day, Werblin, our controller, came into my office with a shed of speradshers as by gas a Buick and found me deep into a Tarot session with Madame Lazongs on AOL I. Couldn't get off—she was in the middle of evaluating the forces now at play in my relationship with

my cocker spaniel, Lumpy. "What the heck are you doing, man?" said Werblin. "Offloading a matrix interface," I told him, invoking my handy screen saver, but I don't think he believed me. In the meantime, I lost precious minutes of chat time! From here on in, I promise to close my door and not let anyone distract me!

I'm going to read my e-mail every day. My behavior here has been inexcus-

able! The other day Berber in Bethesda sent me the fourth quarter revenue numbers (which he had already faxed me a few minutes before), and I didn't find out about it until the next morning! Imagine if that was something crucial! From here on in, I'm going to log on right away, first thing, and spend quality time reading and replying before the first bolt of morning java has cleared my system. That kind of responsiveness to meaningful-indeed, anycommunications is what the 90s are all about.

**Upgrade!** I'm very ashamed. If I were run over by a bus tomorrow and somebody had to look

over my hard drive, the age of the stuff in there would repulse them. So much of my mission-critical work is done on beloved, but antiquated software, and the idea of messing around with it gives me hives in all the wrong places. Up until now, it was almost like I didn't care. It's a new year, with new possibilities, and there's no reason I can't make a clean break with the past. I've got all the newest versions of my favorite software right here, and by next Thursday, I will have installed it all (keeping parallel installations of my old versions, too, just in ease, you know, something appears in the newer ones that I don't like, or is hard to learn, or unnecessarily arcane—you know how it is).

I'm never using the words intomation superhighway again without laughing. And if any of you do at lunch, in a meeting, on the train or in a symposium . . I'll kick you down the block. I'll take you on, one by one! I've had it with every constituent part of it! I'm overloaded with information! I see no evidence that anything about it is super! And it's not a highway! Worst of all, it's an umbrella term

that destroys the need for anyone conversing on the subject to say what they mean. Not to mention the fact that, for the most part, the whole thing is almost entirely fictional. Hely Gangl Right now it's a network with 3 million squinting wretches poking over it day-to-day! And that's it! Brother! When it's more than that, we'll all know about it. Until then—shu up' legal.

I will be jolly and less aggravated. Starting right now. So have a great year! And don't let them eatch you having too much fun on your machine, you hear? The fact that great computing is a whole lot less serious than it looks is one of those

tasty little secrets we should probably just keep between us power users. And if someone should ask whether what you're doing at this moment is worthwhile, just tell them, "Sure—I'm boning up on the protocol for offloading matrix interfaces." That oughtta hold 'em—for another year.

antique system, million poking And tha ard give you it's mor

WHAT YOU REALLY WANT: insightful

I resolve to stop

buying CD-ROM

SHELFWARE.

replace my

WANT: insightful tips on how to OFFLOAD A

MATRIX INTERFACE.

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**HP Printers** 



### The Suite Sound of Communication

The information superhighway won't do anything for your company if you don't have the tools to tame it, and one of the best tools out there is MCI's new communications suite, networkMCI Business. In one tight bundle, network-MCI Business provides you with e-mail, fax, news feeds, document sharing, videoconferencing, and Internet access.

MCI has licensed five of the top communications tools and integrated them nicely. And the idea works—there are so many features that you're bound to find the package a good value. You'd spend about 20 percent more if you purchased the utilities separately, and with MCI's suite, you get a common user interface.

The bundle costs a low \$100 per user, but subscription to tis services soon dwafs this expenditure: Fees start at \$50a month per user and go up from there, especially if you lease videoconferening hardware. NetworkMCI Business is only for companies that take information and communications seriously and are willing to invest in these priorities.

Getting Networked Networked NetworkMCI Business includes licensed versions of Connection, Delrins's WinFax Pro, Picture IFa! LiveLAN, and a number of very good original programs (the version we tested, however, didn't include Internet access). In addition, future versions of the suite are going to include NCSA Mosaic (see "Editors' Choice," December 1994, page 19194, page 19194, page 19194, page 19194, page 19194.

To take full advantage of

networkMCI Business's videoconferencing software, you'll need access to an ISDN line and a PictureTel video camer (most of the hardware can be leased directly from MCI).

While not a true e-mail package, e-mailMCI is a complete e-mail manager with one of the slickest interfaces we've seen. Based on Connection, e-mailMCI lets you access LAN-based e-mail from Microsoft Mail, Lotus's c:Mail, MCI Mail, and every other major vendor. Better yet, MCI has enabled the program with a global address book. That means you can keep all of your contacts together in one place, including fax numbers, pager numbers, and X.400 Internet addresses.

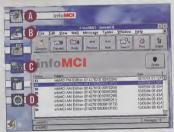
MCI's fax integration is also amazing, and the company owes it all to Delrina's WinFax Pro. MCI licensed this best-selling fax software from Delrina and enhanced its address book to be consistent with

e-mailMCI. As a result, you don't have to look in more than one place to find someone's number.

Conference Calling Still trying to justify the costs of videoconferencing? Try MCI's implementation, conference MCI. It less users see and talk to each other—and work on the same document together on a shared whiteboard using ISDN, You'll need an adapter card and in some cases a network terminator (NTI),

### OVERVIEW

### Wired to the World



Communications Venture: MCI has put all the important business communications features you need—fax, e-mail, videoconferencing, shared whiteboard, and more—into one integrated package. Its networkMCI Business best-of-breed bundle even includes a conference phone and camera.

A. InfoMCI is your personalized information service, searching more than 180 news sources and databases to deliver a twicedaily summary of the news.

- B. ConferenceMCI is a pointto-point collaborative whiteboard tool that lets you
- share the same document.

  C. Just add ISDN to MCI's videoconference module and two users can see each other, hear each other, and view the document they're
- both working on.

  D. InternetMCI will provide you with one-click access to the most powerful computer network in the world (this feature was unavailable for testing during our review).



A SOURCE ASSESSMENT OF THE PARTY OF THE PART

USABILITY: Once you get past ISDN setup bassles, installing networkMCI Business is a breeze. All of the tools in the bundle share a
common interface—
no fuss, no muss—
and MCI backs them
with outstanding
support.\*\*\*

TECHNOLOGY: MCI took the best and ignored the rest everything you need in one unique package.\*\*\*\* VERDICT: Great if you keep an eye on soaring monthly service fees. No other single tool

### **GUIDED TOUR**

TODAY'S ESSENTIAL COMMUNICATIONS TOOLS



E-Mailing the Masses: Using a licensed version of ConnectSoft's E-Mail Connection, networkMCI Business provides a quick messaging solution.



Play by the Rules: Every day, infoMCl sorts through a billion bits of news and information so you don't have to.



Share and Share Alike: You can share documents over standard telephone lines with conferenceMCI and videoconference with an ISDN link.



Spies Like Us: A unique tracking feature in infoMCl automatically keeps you up-to-date with all the latest scuttlebutt on any subject or company, based on rules you define. This screen shows how easy it is to customize a company-specific search.

which you can lease from MCI for as little as \$110 per month (the adapter cards, the ISDN speakerphone, and the video cameras are included).

InfoMCI is networkMCI Business's news retrieval service. It scours through 180 news sources and delivers the information you want, automatically. Simply tell infoMCI what companies, products, or technologies to follow, and it does the rest. This tool—one of the few that MCI developed on its

own—uses intelligent agents to let you rank the importance of the stories you want to see, and it provides the top 30 stories twice a day during a morning feed and an evening feed.

With the growing importance of online marketing and advertising in mind, MCI offers marketplaceMCI. This service lets your company set up a graphical corporate kiosk that acts as an online sales catalog. For now, however, these kiosks can be accessed only by other networkMCI Business sites.

NetworkMCI Business puts an impressive cadre of technology at your disposal, but at what cost? Besides the \$100per-user up-front cost, you'll face numerous monthly service charges. Clearly, it's designed for companies that demand and can afford powerful communications services. But if your organization falls into this category, then its steep price tag might end up being a bargain. JOHN TASCHE.

### FILEBOX

### networkMCI Business

Competition: Many stand-alone products, but no direct competitors include everything in one bundle.

Minimum System
Requirements: DOS 3.0 or
Windows 3.1, 386 CPU,
9,600-bps modem, 20MB
of hard-disk space, 4MB
of RAM, analog phone line.

### Minimum

Videoconferencing Requirements: 24MB of hard-disk space, 8MB of RAM (16MB recommended), ISDN two-channel BRI access line, two vacant adjacent expansion slots on your PC. NTI converter.

\$100 direct per user for software, \$50 to \$68 per user for monthly services, additional per-message charges vary, optional hardware leasing fees MCI (800) 955-5195 Reader Service No. 621

### Guide to the Ratings

In each applicable area—usability, performance, behnology, and verdict—a product is awarded from one to five stars. In some cases, other factors (such as price) also affect a product's verdict.

\*\*\*\*\* Excellent # mark leader that offers exceptional performance.

\*\*\*\* Good Excels in a few areas, a good buy, though not perfect. \*\*\* Acceptable Average for its class; a justifiable purchase.

\*\* Poor Out-of-date or substandard, possibly offset by some positive features. \*\* Unacceptable Missing necessary features or suffering from subpar implementation; avoid.

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## HARDWARE: Magic Link 1000 - DeskJet 540 - MultiSync XP21 vs. FlexScan T2-20 - CD-Book 800 - TravelCard Fast 28.8 - Epson ES-1200C-Pro - SpeedPaq 144 P vs. Megahertz Cellular

### Toshiba T4900CT

### More Powerful Than Your Desktop PC

Finally, a cure for power envy. The first low-voltage PREVIEW 75MHz Pentium-

based portable to hit the streets. the Toshiba T4900CT 6.9pound notebook teems with features and functionalityprobably enough to embarrass your hulking desktop PC.

While Twinhead and Aspen Computer have had Pentium offerings for several months, those machines are based on battery-slurping 5-volt 60MHz and 66MHz chips.

More for Less The 75MHz Pentium dramatically changes the picture, not only for its fast performance in 16-bit applications with no hit in battery life but also because it will pump tomorrow's 32-bit applications along far faster than the moribund 486 chip.

The Toshiba T4900CT's performance soared. It was about 3 percent faster than Midwest Micro's Elite Dual-Scan Sound-Book and 14 percent faster than AST's Ascentia 900N, both of which use the 100MHz DX4 CPU and were two of the fastest notebooks that PC Computing had tested to date.

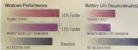
Goosing performance along is a video accelerator running on VESA local bus. And the Toshiba T4900CT's splendid 10.4-inch active-matrix color display (the same screen that's made IBM's ThinkPad line of portables so successful) showcases up to 65,536 simultaneous colors at 640 by 480 resolution.

As with its predecessors in the 4800 series, the Toshiba T4900CT comes with full 16bit sound, including built-in speakers and a microphone. The only thing missing from this

Efficient Speed: The Toshiba T4900CT is just

about the fastest notebook money can buy. And the best part is that you won't need to sacrifice battery life for speed.

The Long and the Short of It





NOTE: MINISTONE IS A SYSTEM-LEVEL BENCHMARK THAT RUNS 12 OF THE MOST POPULAR. MINIOUWS BUSINESS APPLICATIONS ZOLGT PATTERY RUNDOWN TEST MECHANICALLY SIMULATES REYSTRONES.

package is a CD-ROM player. Like most Toshiba products, this machine won high marks in usability. We were happy to see the TrackPoint II pointing stick-licensed from IBM and first used by Toshiba on its Portégé subnote seriesmigrate across the company's flagship line of portables. Two big mouse buttons drop to the front of the case, perpendicular to the keyboard.

Kudos also for the LED panel for system status, much like what's used on Zenith Data Systems' crafty Z-Note series. It provides welcome relief from the inscrutable disco lights that most systems-including desktop PCs-use.

The Toshiba T4900CT has a unique PC Card configuration that includes a Type II slot and a Type III slot (other notebook makers, please take note). This machine also has Toshiba's proprietary memory-card slot. It comes with 8MB of RAM, expandable to an impressive 40MB, and a 772MB hard drive.

Do It All This is a desktop replacement in every sense of the word. It's even got the price to prove it: \$6,799. Steep? Yes, and 75MHz Pentium portables from NEC and IBM (which will include a CD-ROM drive) are soon to follow. But if you'd like to swap your aging desktop system and underpowered portable for the convenience of a single machine, you need look no further than the Toshiba T4900CT MARTY JEROME

### FILEBOX

USABILITY: Kudos for the pointing stick and LED

status display. \*\*\*\* PERFORMANCE: It's the fastest portable money

can buy. \*\*\*\*

TECHNOLOGY: Pentium

VERDICT: Who needs a desktop PC3 \* \* \* \* \* 1/2

The World's Smallest

Desktop: The Toshiba

T4900CT has a 75MHz

Pentium processor-enough

power to take the place of

your desktop computer.

power and an active-matrix display to die for. \*\*\*\*

### Toshiba T4900CT

Competition: None vet, but watch out for new portables from IBM and NEC

Configuration Tested: 75MHz Pentium, 8MB of RAM, 772MB hard drive.

Preloaded Software: Windows Sound System 2.0. RunTime Video for Windows 1.1, and Intel's Indeo Video 3.2.

Toshiba America Information (800) 334-3445 Reader Service No. 622

Guide to the Ratings:

\*\*\*\* Freellent

\*\*\*\* Good

\*\*\* Acceptable

\*\*Poor

\* Unacceptable

### Sony Waves a Magic Message Wand

You say you have faxes to receive, e-mail to send, meetings to schedule, and phone calls to return-and you're in the middle of a three-week, 14-city marketing tour? Good luck. Take some No Doz and pick up a Magic Link Personal Intelligent Communicator 1000, Sony's first entry into the PDA arena.

The Magic Link comes with a wealth of messaging features courtesy of AT&T's Persona-Link Services. The services run on the Magic Link using General Magic's Magic Cap objectoriented operating system.

One notable omission from this PDA is two-way wireless communication-the Magic Link communicates via builtin RI-11 phone jack. Its steep price tag is also a disappointment: At \$800 on the street, the Magic Link is certainly not for everyone. But if you're the Mad Max of mobile professionals, you should give it serious consideration.

Messaging Mania The heart of the PersonaLink Services are the intelligent agents that can be incorporated into your messages. In standard e-mails, these agents can carry voice recordings, animated icons, and instructions for forwarding and filing messages. On a grander scale, the agents, using General Magic's Telescript technology, can carry billing information, instructions, and procedural data to commercial services.

Through a special gateway to AT&T's EasyLink Services, you can send and receive e-mail from the Internet, MCI Mail, CompuServe, Prodigy, PersonaLink Services, AT&T Mail, and X.400-based mail services. You can also send faxes to just about anyone,



Magical Mystery Tool: If you're looking for a mobile secretary, communicator, and companion, try the Magic Link, Sony's first entry into the PDA arena.



The Wysiwyg Desk: The Magic Link employs General Magic's Magic Cap, an easy-touse visual interface for all facets of communications.

and with an optional PC Card pager from SkyTel, you can even receive pages.

A One-Pound PIM The 1.2-pound Magic Link also maintains your schedule and todo list, and keeps your contact list current-though its 1MB of RAM fills up pretty quickly.

Although the Magic Link doesn't currently support handwriting recognition, a version of Palm's Graffiti should soon be available for Magic Cap. An innovative handwriting recognition engine, Graffiti relies on a specialized alphabet. You can also plug in an optional external keyboard for more serious data entry. (The other must-have option is a flyweight telephone headset that turns the Magic Link into the world's most expensive telephonealbeit one that has its own built-in address book.)

Connectivity between the Magic Link and a desktop PC or Macintosh is accomplished through IntelliLink's Magic Xchange. This program supports data transfer, translation, and backup for many file formats and applications, including Lotus's Organizer and Microsoft's Schedule +. And by the time you read this, the program should also support Act, Calandar, Commence, Ecco Professional, Sidekick, Excel, dBase, and Paradox.

The Magic Link includes a

USABILITY: Simple interface masks the Magic Link's

complexity. \*\*\*\* TECHNOLOGY: Magic Can/Telescript agents at

your beck and call, \*\*\*\* VERDICT: A serious set of features at a very serious price. \* \* \* \* 1/2

### FILEBOX

### Magic Link 1000

Competition: Apple's Newton, Tandy's Z-PDA Zoomer, Sharp's Wizard. System Features: Motorola 16MHz 68349 CPU, 1MB of RAM, 4MB of ROM, 2,300/ 9 600-hns data/fax modem, 480-by-320-pixel LCD with four shades of gray, RJ-11 jack, PC Card Type II slot infrared port.

Weight: 1.2 pounds. Options: SkyTel pager card, portable keyboard, telenhone headset, Magic Xchange connection software for Windows or Macintosh, rechargeable battery pack.

\$800 est, street price (800) 556-2442, (201) 930-1000 Reader Service No. 623

number of useful applications on its 4MB of ROM. Chief among them is Intuit's Pocket Quicken, an outstanding financial manager that links into Quicken on your desktop PC. And if you absolutely must use a spreadsheet on the Magic Link's tiny screen, PenWare's PenCell is included.

Sony's Magic Potion The Magic Link is leaps and bounds beyond other PDAs. The big price tag and lack of wireless capabilities are hard pills for most casual users to swallow, but for mobile e-mail mayens, the Magic Link provides communications links of a kind you can't find anywhere RICHARD SCHWERIN

\* Unacceptable

\*\* Poor

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WARDED.

### Easy-as-Pie Color Printing

If you've been waiting for that perfect moment to buy a lowcost ink-jet printer, now is the time to take out your wallet. For a combined list price of just over \$400, HP's new DeskJet 540 and its color upgrade kit can give you 600-by-300-dpi black output and 300-by-300dpi color output to spice up any document.

The Desk Jet 540 replaces HP's Desk et 520, a low-end monochrome ink-jet printer. Snap in the color upgrade kit, and the Desk Jet 540 is also a replacement for HP's DeskJet 500C, an all-in-one printer with a sleek, new design.

Easy Does It There's a

new trend in low-end ink-jet printers: simplicity. But we've never seen an ink-jet printer as easy to set up as the DeskJet 540. Just plug it in, snap in a cartridge, and install a driver; HP takes care of the rest. If you switch your black printing cartridge to the color cartridge, the printer is one step ahead of you and will configure the software accordingly. And if you go to print an all-black document using your color cartridge, the software will suggest that you switch cartridges-no need to tell this printer anything.

The Desk Jet 540 ships with easy-to-use Windows software (DOS users must follow the conventions set forth by the applications they use). If you want to get fancy and fiddle with your color options, the included ColorSmart software lets you specify the type of document you're printing (graphics or photographs, for example), the quality you want (best, normal, or economy), and the material you're printing on (such as transparencies or glossy paper). The software



Sleek and Simple: HP's DeskJet 540 sports a new design that's as functional as it is attractive. Gone are the days of front-panel controls-with the DeskJet 540 and its user-friendly software, you drive the printer from the keyboard of your computer.

Newest Is Best: The Desk Jet 540 was the fastest of the low-end ink iets in printing a color business report, besting its predecessor, the DeskJet 500C, by 21 percent.

Low-End Color Ink Jets Business Report (text and graphics) 21% Faster 10% Faster TI MICROMARC COLOR INICES Baseline NOTE DESKIET 540 WAS YESTED WITH ITS COLOR UPGRADE KIT.

takes care of the rest. The software even contains an animated online tutorial to help you with common questions.

When compared to the older Desk Jet 500C, the Desk Jet 540's output appears richer and its colors truer. In a head-to-head comparison with Texas Instruments' microMarc Color Inkjet, the DeskJet 540's colors are smoother and more consistent.

If you use its color cartridge to print plain text, your blacks will have a greenish tint. This is because the DeskJet 540 (like other low-end color printers) uses a composite black-a combination of cyan, magenta, and yellow-instead of true black. For plain text, it's better to swap the color cartridge out for the all-black unit. This will make your text output better, though not quite up to the level of Canon's BJC-4000 (see "The Crossroads of Color," October 1994, page 58).

Speed Greed The Desklet 540 isn't a speed demon, but it is competitive with other printers in its class. In our tests, it was 21 percent faster than the DeskJet 500C for a business report containing both text and graphics, but about 7 percent slower for a color presentation. All in all, the speed is nothing

USABILITY: The easiest ink-jet printer to use, hardware and software setup was

simple, \*\*\*\* PERFORMANCE: Speed is on par with competing ink jets, output quality is

higher. \*\*\* TECHNOLOGY: Solid feature set, no groundbreaking

technology, \*\*\* VERDICT: It's cheap, easy to use, and the quality is as good as any printer in this price range. \* \* \* \* 1/2

### FILEBOX

### DeskJet 540

Competition: TI's microMarc Color Inkiet and Lexmark's Execlet IIC are in the same price range, but the quality of the DeskJet 540 with its color upgrade surpasses those competitors.

Resolution: 600 by 300 dni for black, 300 by 300 dpi for color.

Extras: For \$49, the color ungrade kit (cartridge and container) turns this black-and-white ink jet into a color printer.

(800) 752-0900 Reader Service No. 624

to shout about. However, if you plan your printing ahead of time, the DeskJet 540 won't keep you waiting long.

It's hard to go wrong with the rock-bottom price of this printer. Without the \$49 color option, it will set you back only \$365 (less than \$300 on the street). And although there are other printers in this price range-even some that are less expensive-when you consider the easy-to-use features of the DeskJet 540 and output quality that surpasses its closest competitors, those few extra dollars won't mean a thing. KYLA K. CARLSON



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### New! HARDWARE: MultiSync XP21 vs. FlexScan T2-20

### **Display Your Best Side**

There are many excellent reasons to upgrade to a 17-inch or larger monitor; more Windows desktop real estate, comfortable flicker-free refresh rates, and better image quality, to name a few. But there's an even better reason. NEC and Nanao have upgraded their premium monitor lines to feature color matching, Plug and Play, amazing image quality, and several other innovations that make monitor gazing easier on the eyes.

NEC's 21-inch MultiSync XP21 and Nanao's 20-inch FlexScan T2+20 in particular set standards other monitors will chase for years. Colors are uniformly rich and bright, and focus is razor sharp, even at the corners of the displays. The MultiSync XP21's display uses a 0.28mm flat-square tube with an antiglare surface, while the FlexScan T2+20's monitor uses Sony's 0.28mm slot-pitch Trinitron tube. Both monitors hit superfine resolutions of 1,280 by 1,024 at refresh rates of 76Hz and higher.

Total Control Tuning the image on a monitor has never been easier than it is with these units. Lightly tap a button on the front panel of either monitor and a window pops up onscreen to step you through image adjustment. The Multi-Sync XP21's controls use animation to show what each does; the FlexScan T2.20's onscreen controls use icons to the same end. Both methods provide easy access to controls-including some of the more advanced features like RGB color control (for tweaking a monitor's color guns) and power management.

To correct any discrepancy between what you see on your monitor and what you get from your color printer, NEC and



Orchestra Seats: Nanao's FlexScan T2-20 (left) and NEC's MultiSync XP21 (right) offer the best views of Windows. And for tight budgets and cramped space, 15- and 17-inch models are also available.

CHOOSE YOUR SCANNER SMARTS PICKS Bigger display, NEC MultiSync XP21

bigger price tag Brighter colors.

slightly smaller screen, lower price

Nanan FlexScan T2+20

Nanao include Colorific, Sonnetech's color-matching software, Putting Colorific to work is a simple one-time procedure using Kodak color swatches and software controls to calibrate your monitor. The process compensates for ambient lighting, video card peculiarities, and other factors that might affect color purity. If you print in color, this software will save you hours of frustration.

Plug and Play The Multi-Sync XP21 and FlexScan T2.20 bring other innovations to the table as well. Both include Plug-and-Play compatibility so that when Windows 95 ships it will be able to detect the refresh rates and resolutions that the monitors can handle. And the MultiSync XP21 includes support for Access.bus, a twoway communications channel that lets you control your monitor via software.

Pixel for pixel, the MultiSync XP21 and FlexScan T2.20 are among the best monitors you're going to find anywhere. The images on the FlexScan T2+20 are slightly brighter and its colors are richer than those on the MultiSync XP21, but that's nitpicking; neither of these monitors disappoint. Even so, we'll take Nanao's 20-inch FlexScan T2.20 on the basis of price. At \$1,990, it's nearly \$600 less than NEC's 21-inch MultiSync WENDY TAYLOR XP21.

### MultiSync XP21

USABILITY: Easy-to-use onscreen controls, \*\*\*\* PERFORMANCE: Crisp focus, less-than-bright color. \*\*\* TECHNOLOGY: Plug-and-Play ready. \*\*\*\*

VERDICT: Great looks, high price. \* \* \*

### FlexScan T2·20

IISABILITY: Matching color output is a cinch. \*\*\*\* PERFORMANCE: Best-looking Trinitron around. \*\*\*\* TECHNOLOGY: All the bells and whistles. \*\*\* VERDICT: An MVP Awardwinner. \* \* \* \* 1/2

### FILEBOX

### MultiSync XP21

Resolutions Supported: 1,024 by 768 at 76Hz. 1.280 by 1.024 at 76Hz, 1,600 by 1,200 at 70Hz. Active Display: 19.8 inches. Utilities: Colorific colormanagement software. MonitorManager software image controls.

Warranty: 3 years. Other models: MultiSync XP17 (\$1,295), MultiSync XP15 (\$699).

\$2,580 est, street price (800) 632-4636, (708) 860-9500 Reader Service No. 625

### FlexScan T2·20 Resolutions Supported:

1 024 by 768 at 100Hz. 1,280 by 1,024 at 80Hz, 1.600 x 1.200 at 66Hz. Active Display: 19 inches. **Utilities:** Colorific software, After Dark's green screen saver.

Warranty: 3 years. \$1,990 est. street price (800) 800-5202, (310) 325-5202 Reader Service No. 626

> \* Unacceptable JANUARY 1995

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gazing easier on the eyes.

NEC's 21-inch MultiSync XP21 and Nanao's 20-inch FlexScan T2.20 in particular set standards other monitors will chase for years. Colors are uniformly rich and bright, and focus is razor sharp, even at the corners of the displays. The MultiSync XP21's display uses a 0.28mm flat-square tube with an antiglare surface, while the FlexScan T2.20's monitor uses Sony's 0.28mm slot-pitch Trinitron tube. Both monitors hit superfine resolutions of 1,280 by 1,024 at refresh rates of 76Hz and higher.

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MultiSync XP21

USABILITY: Easy-to-use onscreen controls. \*\*\*\* PERFORMANCE: Crisp focus, less-than-bright color. \*\*\* TECHNOLOGY: Plug-and-Play

readv. \*\*\*\* VERDICT: Great looks high

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1.024 by 768 at 100Hz,

1.280 by 1.024 at 80Hz,

1,600 x 1,200 at 66Hz.

software, After Dark's

green screen saver.

Warranty: 3 years.

\$1,990 est. street price

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Nanao USA

**Utilities:** Colorific

Active Display: 19 inches.

\*\*\*\* Good

\*\*\* Acceptable

\*\* Poor

\* Unacceptable

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PREVIEW He would have made CD-ROM drives and speakers small enough to fit inside a notebook PC, right?

That's the premise behind MPC's new CI-Book 800—a 7-pound machine with a dual-speed CD-RoOM five, built-in speakers, and 16-bit Sound Blaster-compatible audio. How does it manage this shochorn magic? Well, the floppy drive is external, and the speakers aren't exactly presentation quality. But even with a couple of external speakers and a floppy drive, the total heft is still less than 10 pounds—the lightest multi-media systems we've seen.

The CD-Book 800 is certainly ready for action. Powered by either a 75MHz or 100MHz 486 DX4, it comes with 4MB to 32MB of RAM and VESA local-bus video with



Spin and Go: The full-sized, top-loading CD-ROM drive on MPC's CD-Book 800 performs as well as or better than CD-ROM drives designed for desktop systems.

1MB of DRAM. The 200MB or 520MB hard drive is removable, and multimedia performance on the 100MHz model we tested was impressive—though a level-2 cache would have boosted productivity.

You can choose between a 9.5-inch dual-scan passivematrix or active-matrix display. Both are capable of 256 colors at 640 by 480 resolution or SVGA (256 colors at 1,024 by 768) on an external monitor. The fast response of the activematrix display means you won't need an external monitor for presenting to a few people.

Even though we'd like to see a better keyboard and a more usable pointing device in MPC's next version, the CD-Book 800 provides the most convenient way we've found to take a multimedia show on the road.

MARTY JEROME

USABILITY: Superb CD and display; short-travel keyboard and pointing

device need work. \* \*\*
PERFORMANCE: Top-notch
multimedia, short battery
life, no L-2 cache, \* \*\*

TECHNOLOGY: Faultless

MPC 2 compliance, SCSI

port, two PC Card Type

Uslots \*\*\*\*

VERDICT: Use it for presentations, not productivity. \* \* \* \*

### FILEBOX

### CD-Book 800

Configuration Tested: 100MHz 486 DX4, 8MB of RAM, 520MB hard drive, active-matrix display. Multimedia Features: Dual-speed CD-ROM drive, Sound Blaster compatible audio, 0.5-watt internal speakers, bundle of ten CD-ROM titles.

\$3,899 list as tested MPC Technologies (714) 724-9000 Reader Service No. 627

### TravelCard Fast 28.8

### Microcom's Modem Pole Position

If your portable office lacks a superfast PC Card modem, look no further than Microcom's new TravelCard Fast 28.8. It's the speediest PC Card modem we've ever tested.

The TravelCard Fast 28.8 features Advanced Parallel Technology (APT), a parallel-port system that ensures effortless communication even when you're running task-switching operating systems like Windows. APT transfers 8 bits of data at a time, compared to the single bit that serial-port moderns transfer.

When connected to another

V.34 modem, the TravelCard

TravelCard Fast 28.8 modem is speedy (28.8Kbps) and portable.

Fast 28.8 screams. It churned I

out data transfers 68 percent faster than one of the fastest PC Card modems we've tested, Angia's SafeJack 19.2. While you won't get as substantial a performance increase when connected to a 14.4Kbps modern, you'll save more money and time in data transmission as the world adops the V3-4 standard. Most importantly, the TravelCard Fast 28.8 works wonders when you connect using remote-control soft-ware such as Microcom's Carbon Copy for Windows

LapLink for Windows.

If you need a fast connection for your portable, pick up the TravelCard Fast 28.8 and plug it in.

JOHN TASCHEK

or Traveling Software's new

USABILITY: Easy installation and software, \*\*\*\* PERFORMANCE: The fastest we've tested. \*\*\*\*\* TECHNOLOGY: Ideal parallel data transfer. \*\*\*\*\* VERDICT: The best PC Card modem. \*\*\*\*\*\*

### FILEBOX

### TravelCard Fast 28.8

Data Support: Two-wire dial, asynchronous.

Fax Support: 14.4Kbps.

Class 1, Group 3 send and receive.

\$489 est. street price Microcom (800) 822-8224, (617) 551-1000 Reader Service No. 628

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### Quick and Simple to Find Cards

The Windows-based address book lets you find any business card quickly. Locate your contacts by first or last name, company, city, date, or any other dutabase held. Print out your database with peers from for Dayliner, Boloder, Fandlin, etc., or create your own Juyant. Card'offiberly compart for makes it perfect for your desktop at home or office, or take it along with your notebook PC when you travel.





The CardGrabber system comes complete with everything you need to organize your business cards—electronically.

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### Flat-Rate Color Scanning

Want 600-by-1200 dpi of living 24-bit color without the attendant cost or wait? The Epson ES-1200C-Pro delivers it with great hardware—and software you can learn to live with.

The Epson ES-1200C-Pro is everything you could want from a flatbed color scanner: It's fast, accurate, and beautifully designed. But the scanner software that comes with it is confusing to install and has interface elements that range from befuddling to ingenious.

Once the installation hurdles are cleared, the Epson ES-1200C-Pro is relatively simple to use. Although the software lacks some controls we'd like to see, its Auto Scan feature goes a long way to make up for it. You choose the type of image



Sample Sale: The Epson FS-1200C-Pro scanner reads 30 bits of color and samples it down to the best 24 bits-for the price of a regular 24hit scanner.

you're scanning (color photograph, black-and-white line art, whatever) and the image's destination (printer, fax, or screen), then click the Auto Scan button. The software does everything else for you.

As for the scanner itself, we couldn't be happier. The Epson FS-1200C-Pro scans 24-bit letter-sized images in a zippy 45 seconds with sharp and beautiful results. And its price is so low compared to other scanners in this class that complaining about a little finetuning in the software is just picking nits. RON WHITE USABILITY: Except for installation, it's almost automatic \*\*\*

TECHNOLOGY: Great on the hardware side, a little flaky on the software side. \*\*\* VERDICT: Good speed, image quality, and price. \* \* \*

### FILEBOX

### Epson FS-1200C-Pro

Comnetition: Umax's Powerl ook

Specifications: One-pass scanning, 8.5-by-11-inch image, 600-dpi (up to 2.400-dpi interpolated), 30-bit scanning.

Software: Kai's Power Tools Fauve's Matisse Light, Adobe's Photoshop. Adaptec SCSI interface.

Reader Service No. 629

### SpeedPag 144 Pvs. Megahertz Cellular

### Modems on the Range

Your business keeps you on the road more often than not, and while a fax modem is your lifeline, vou're not always near a handy-dandy RJ-11 iack. But with a cellular PC Card fax modem, you don't have to be.

Compaq's SpeedPaq 144 P and Megahertz's Cellular Upgradable 14,400 bps PCM-CIA Fax Modem both connect directly to your phone and use existing cellular technology to keep data transfer speeds up and costs down, no matter where your business takes you.

Digital Data Dance Analog cellular networks were never intended to transfer data. Several factors contribute to poor line quality, data transmission errors, and dropped connections, including multiple conversions from analog to digital, atmospheric conditions, and static. But Compaq's SpeedPaq 144 P and Megahertz's Cellular offer solutions to these problems. Modem Phone Home

Both modems employ the MNP 10 protocol, which increases transmission reliability and data transfer speed by dynamically adjusting line speeds and packet sizes. But to enjoy the benefits, both the transmitting modem and the receiving modem must support MNP 10.

Compag's SpeedPag and Megahertz's Cellular both require special cables to connect to various types of cellular phones. The SpeedPag 144 P supports Motorola's Micro Tac

and MicroTac Lite, the Nokia 121, and the TechnoPhone 415. Plus, it includes a copy of Delrina's WinFax Lite for Windows, Megahertz's Cellular supports the NEC P100 series, the Mitsubishi 3500 and 4000, all DiamondTel and TalkTime phones, and the

Nokia 121.

you have.

If your business ventures demand the portability of a cellular fax modem, Compag's SpeedPag 144 P and Megahertz's Cellular are more than adequate solutions that are also easy to use. Both modems are a good way to communicate when you're beyond the range of ordinary connections. Which one you should buy depends mostly on the type of cellular phone

### SpeedPag 144 P

TECHNOLOGY: MNP 10 protocol does it all. \*\*\* VERDICT: Costs more than its competitor, but fax software is worth it. \* \* \* \* 1/2

### Megahertz Cellular

TECHNOLOGY: Great MNP 10 cellular data transfer. \*\*\* VERDICT: Inexpensive, but software suffers. \* \* \* \*

### FILEBOX

### SpeedPag 144 P

\$309 est, street price Compaq (800) 888-5858, (713) 370-0670 Reader Service No. 630

### Megahertz Cellular \$219 est, street price

(800) 527-8677, (801) 320-7000 Reader Service No. 631

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- Serviceability
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- Easy-ta-Remove Keybaard for Quick Memory and BIOS Uparade EasyTrac™ Centrolly Lacated Removable Trackboll

  - 2 PCMCIA Type II Slats/1 Type III Slot

- 1 44MR Diskette Drive
- Lacal Bus Accelerated Graphics
- Suspend-ta-Disk Feature, "Na-Rebaot" CMOS Setup and Suspend-Resume Hat Buttan Preserve Battery Life
- Easily Upgradable 500MB 2.5" Hard Drive
- Simultaneous LCD/CRT Display
- Slim 8.66" x 11.4" x 2.1" Case Weighs 6.4 lbs, Including NiMH Battery Pack
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- Simultaneaus LCD/CRT Display
- Slim 8.66" x 11.4" x 2.1" Case Weighs 6.4 lbs, Including NiMH Battery Pack



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A desktop system for your home or small office would be nice, but the price has to be right, and it's got to have some computing power. Now, just in time for the holidays, comes the AcerPower series of desktop and minitower PCs. They're out-of-the-box performers that leave as much room for future expansion as they leave leftover cash

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value-priced desktop models to higherend, super-powered minitowers that admirably serve the most power-

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business grows and resources allow. Start with an i486DX2/66MHz processor-equipped AcerPower built for productivity. Or opt for a Pentium-powered desktop tower that tears through numbercrunching and multitasking jobs with ease.

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Make your AcerPower a family multimedia



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We understand the importance of your system. If you ever have a problem that con't be handled over the phone, we'll send a service technician to assist you within two business days. That sure beats losing voluable work time while you send your system in for repoirs.







# Color is color, unless you want performance *and* price.

New Phaser<sup>™</sup>140 Color Printer; \$1,695.

At last there's a low-cost printer with world-class
performance. It lets your business hit the ground running,
start with 360 dpi resolution on plain or glossy paper,
transparency or back-print film. Pour on Pantone's
certified color and Adobe "PostScript" Level 2. Rip

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### **Tektronix**

Circle 123 on reader service card.



### Ventura 5

### **Ventura Advances Under Windows**

If you've been publishing documents on a PC since the DCS days, chances are you've used Ventura Publisher. But if you left Ventura behind when you moved to Windows, prepare to welcome it back onto your hard disk. The new Windows version, published by Corel, has enough muscle to challenge heavyweights like Page Maker, including improved color printing, typography control, and database publishing features.

The older Windows version of Ventura was a DOS/GEM program at the core, with a thin veneer of Windows slapped on. Not so with Corel's Ventura 5. The vestiges of its GEM past—WID font width files and the time-wasting and disk-hogging graphics conversions have been removed. Instead, Ventura now taps into Windows' PFM files and improts graphic file formats directly—including [PFG and Photo CD.

Another Pretty Face A new Corellbraw-style interface makes using Ventura easier than before—especially if you get it as part of the \$899 Corel-Draw 5 megabundle.

Graphies handling has been improved with a new irregular text-wrap feature that lets you choose from a variety of wraps and modify them with Bezier tools. You can also rotate frames of graphies or text in U1-degree increments, though rotation of text within a frame is limited to 90-degree increments. For layout protection you can lock a frame's size and position, and under Corel's guidance, Verntura has acquired a pasteboard similar to Page/Maker's.

But judging from our tests



Back in Windows: The standby DTP program Ventura is back, offering strong mid-range design features. For

back, offering strong mid-range design features. For example, irregular text wraps are easy with its CorelDrawlike Bezier tools. A. Drop-down list boxes track a publication's tags and component objects.

B. The CorelDraw-style expanding toolbox provides quick access to Ventura's key tools and palettes.

C. Also like CorelDraw, wi Ventura has roll-up irr

palettes and menus that can be stowed away into a title bar to prevent screen clutter.

D. Objects onscreen can be edited using Bezier points.

E. Ventura now supports text wrapping around irregular objects. USABILITY: Looks and works like a Windows app finally. \*\*\*

TECHNOLOGY: Supports
Windows fonts and OLE,
good graphic imports,
tight integration with
Corel suite. \*\*\*\*

VERDICT: Good strides in the right direction, but needs more polish to give it a professional feel. \* \* \*

### Roll it Up, I'll Take It: Ventura's new

Placement roll-up menu offers free rotation of frames in 0.1-degree increments. For text within frames, rotation is limited to 90-degree increments for entire paragraphs only.



of a still-buggy final release candidate, Ventura has a way to go. You still can't open more than one document at a time, nor can you use tabs in justified text. And to compete with FrameMaker for producing long documents, Corel will need to provide other missing features: character tags, multiple indexes and tables of contents, a choice of footnotes or endnotes, and a built-in marco language, not to mention Macintosh and Unit versions.

Take Control Still, Frame-Maker, QuarkXPress, and PageMaker can't beat the level of formatting and typographical control offered by Ventura's paragraph-based style sheets—a boon when your document requires a complex, structured format. FrameMaker may be more capable for technical documentation—where you need elaborate cross indexing, multi-level paragraph and illustration numbering, indexes, and tables of contents—but Ventura is certainly no slouch here either. QuarkXPress and PageMaker, however, have Ventura beat when it comes to mixing type and graphics in documents and doing freestyle design.

For projects that occupy the middle ground between graphically intense ad work and technical documentation, Ventura 5 is definitely worthy of consideration.

BOB WEIBEL

### FILEBOX

### Ventura 5

Competition: FrameMaker, PageMaker, and QuarkXPress—all of which work on both PCs

and QuarkXPress—all of which work on both PCs and Macs (unlike Ventura). Minimum System Requirements: 386, 8MB

of RAM, VGA display, Windows 3.1 or higher. Features: Pasteboard, irregular text wrap, and

OLE support.

\$495 est, street price for
CD-ROM (\$595 with flopples)
Corel Corp.
(800) 772-6735
Reader Service No. 632

Guide to the Ratings:

\*\*\*\*\*Excellent

\*\*\*\* Good

\*\*\* Acceptable

\*\*Poor

\* Unacceptable

### A Database and Then Some

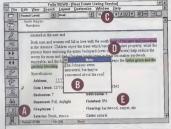
It's a typical 1990's corporate complaint: "This company has all the information I need, but it would take a crowbar to get at any of it." If this sounds familiar, then you need Folio's Views IPK 3.1 for Windows to store and retrieve your company's information, whether it's field service schematics, Help Desk data, or downloads from Lexis-Nexis.

Views stores everything in an "infobase," a cross between a database, a Windows Help file and a rich text document. Infobases can be highly structured or free-form, and you can search in them for phrases and words. But they can also be enhanced with hypertext links, buttons, and menus, and organized in a structured database.

Information Access The Infobase Production Kit (IPK) in Views makes the creation of simple infobases a quick opensave-and-close process. Just use its straightforward interface to import WordPerfect. Microsoft Word, ASCII, RTF, or Lexis-Nexis formatted data and save the document as a Views NFO file. That's all there is to it: You've created an infobase. No need to open a manual (just as well, since the documentation is skimpy) or a help menu (which, as you'd expect, brings up an infobase instead of a limited Windows Help file).

Views can be used for small or large projects, from a basic online help system (Novell's NetWare is actually a Views infobase) to an entire set of documentation and schematics to be used by field service reps (at least one appliance repair company does this).

In addition to searching infobases, you can mark areas of interest with bookmarks, use



Pick a Name: The Query button in Views' toolbar kicks up the Word Wheel (right). This feature gives you instant access to all of the words in an infobase. And the full text of any Views' infobase is dynamically updated, so you can quickly find additions that were made just minutes ago by one of your colleagues.

Word: kids kim kitchen kitchens kory labor Indies large

USABILITY: A pleasure to use for both developers and end users. \*\*\*\*

TECHNOLOGY: Fast search engine combined with good compression. \*\*\*\*

VERDICT: Throw out all your paper documents and use infobases instead. \* \* \*

### Better Than Paper: It's less expensive and

more effective to distribute information electronically, and Views is about the best way to do so.

A. Want to return to a section later? Click on the Bookmark button and name your location Select this button again for a list of existing bookmarks.

B. Searchable notes are easy to attach to files. The small yellow ican to the left of the text indicates there's a note in place.

C. There's no pain in formatting Views infobases. The button bar contains everything you'll need.

D. Customize your infobase data with color-coded highlights for

quick scanning to locate features.

E. Infobases use standard database fields as well as formatted text. Simply click on the Query button to search them.

custom highlighters to colorcode specific areas, and insert annotations that can also be indexed for searching. But the most exciting feature

in Views lets multiple users access the same infobase and edit it, add notes, or place highlights-all without affecting the original document. Changes are made in a separate Shadow File, which is saved separately. Later, you can consolidate any changes in the Shadow File with the master infobase. Data Dippers For a more

structured approach, you can designate areas in documents as database fields. Sav vou're building a contact-management infobase. You would identify the name, phone number, city, state, and company as fields and search on them like you would in any modern database. And since all data in an infobase is dynamically indexed, you can search on any word at any time, whether it was entered by you, the infobase creator, or another user. You can also perform more complex queries or use the Views development kit to create a Ouery Template with a fill-in-the-blanks query window. Either way, it's pretty simple given the well-designed interface of this program.

Does your organization need Views? If you need quick access to information and can't lug a shelf full of documentation around, it's a godsend. And best of all, it doesn't require an enormous development over-YAEL LI-RON head up front.

### FILEBOX

### Views IPK 3.1 for Windows

System Requirements: 386, 4MB of RAM, 17MB of hard-disk space for installation (additional space needed for infobases and indexes).

Windows 3 or later.

recommended).

**Cross-Platform Support:** DOS version (286 with 2MB of RAM), Macintosh (68020 with at least 4MB of RAM; 6MB of RAM

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\*Also available: Version 2.0 for DOS.

Does not include new WIN 3.0 features.

Does not include new WIN 3.0 features.

ten equirements: 386 or higher IBM compatible PC with 4
includes 31 or higher. 10 MR fire strate on your hard disk and

### **Project Juggling Made Easy**

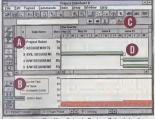
Just because you're not building an aircraft carrier doesn't mean you don't need the power of project management software. And if you think tapping into this power is about as appealing as petting a rabid porcupine, guess again. Whether you're managing one project or a thousand, Scitor's new Project Scheduler 6 for Windows, Version 1.5 provides all the intricate task, budget, and report features of a high-end project manager in an intuitive, usable, and inexpensive package.

Licking the Lingo Project Scheduler still requires you to learn some of the language of project management-Gantt charts, baseline costs, and Pert duration analysis, for example-but its interface and comprehensive online help system make the learning process relatively painless. But the real help for novice project managers is Project Scheduler's spreadsheet metaphor. If you're comfortable with 1-2-3 or Excel, you won't have any trouble using Project Scheduler.

are how quickly and easily they can get started, professionals will value Project Scheduler's rich feature set. For example, the program can integrate an unlimited number of projects, and you can switch between these projects with a simple mouse click. This multiproject capability means that you can have many as 10,000 shared resources among an unlimited number of projects.

While novices will appreci-

To help you organize, sort, filter, and summarize your data, projects can be viewed in one of three outline structures: the Work Breakdown Structure is designed to manage things like life-cycle phases, research and development, and



Projecting Reality: Scitor's Project Scheduler 6 for Windows is an invaluable tool for tracking and managing any business project from start to finish.

The Import/Export Business: Larger projects require that you keep all players on a team informed. But what do you do when the players live on a different platform? Project Scheduler's data input/output and ODBC functions solve your import and export dilemmas.

USABILITY: If you've ever used a spreadsheet, Project Scheduler's features will seem like a cinch.\*\*\*\*

TECHNOLOGY: Native, selective ODBC support is a major bonus over what competitors offer. \*\*\*\* VERDICT: Makes managing

VERDICT: Makes managing multiple projects easier than ever. \*\*\*\*2

A. Besides Gantt chart capabilities (shown here), Project Scheduler includes Pert analysis, Pareto diagrams, and more.

B. Five useful templates are only a click away, including Task, Predecessor, Assignments, Notes, and Format.

C. Project Scheduler includes three outline structures to help you organize, sort, filter, and summarize projects. Work Breakdown Structure, Organizational Breakdown Structure, and Resource Breakdown Structure.

D. Using the Gantt chart view, it's easy to track multifaceted projects. For example, click on any point to access budget figures.



testing; the Organizational Breakdown Structure presents tasks and the departments that are responsible for them; and the Resource Breakdown Structure categorizes all resources—people, machinery, material, labor, and so on.

ODBC for You and Me Project Scheduler 6 surpasses some of the competition by offering support for Microsoft's Open Database Connectivity (ODBC). This provides a way of interactively linking data from Project Scheduler to non-PC programs such as IBM's DB2 database manager and the SAS System. Once you establish a project repository on your server, any package that supports ODBC can access your Project Scheduler files and vice versa. Symantec's Time Line supports ODBC directly

as well, but Microsoft's Project 4.0 does so only indirectly through Microsoft Access.

To give your projects a consistent look, project Scheduler less you define common display and printer styles. In addition, it's the only project management application that supports object-oriented reports. You can create, modify, and save as many different report templates as you wish, and you can run reports on any factor. Holds. The program ships with more than 40 ready-made reports.

A Real Power Tool Project Real Power Tool Project Reheduler 6 offers powerful features in an easy-to-use package that's a good solution for novices and professionals alike. For the power it can give you to organize and track projects, it's a great bargain.

STEPHEN J. VAUGHAN-NICHOLS

### FILEBOX

### Project Scheduler 6 for Windows

Competition: Microsoft Project 4.0, Symantec's Time Line, CA-SuperProject.

System Requirements: 386, 4MB of RAM (8MB recommended), 4MB of hard-disk space, DOS 4.0, Windows 3.1 or later.

Features: Gantt charts, Pert analysis, schedule and cost tracking, batch reporting, and an objectoriented report writer.

5420 est, street price Scitor Corp. (800) 745–8400, (415) 570-7700 Reader Service No. 634

# Introducing Delrina WinFax PRO 4.0. You'll wonder how you ever faxed without it.



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Based on extensive usability testing, the new customizable interface includes folders for organizing sent and received faxes.

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Imagine faxing, not just an image of a document, but the actual file itself\*, so it's ready to be used in an application. Imagine sending a single document that is automatically faxed to some people and e-mailed to others.

to others.

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# Prepare, Practice, and Persuade

It used to be that giving a presentation was a traumatic event-sweaty palms, shaky hands, and a nervous voice. With time, however, you've improved enough to overcome that nervousness Presentation software like Aldus Persuasion has also been improving. Its newest incarnation, Version 3.0, contains a host of new features that make it easier to use and add the power to include sophisticated chart types and multimedia capabilities.

Central Outline Although Aldus Persuasion 3.0 for Windows is leaps and bounds ahead of its predecessor in ease of use, the first thing you're likely to notice about the program is that it's still centered around an outliner. Similarly, it still uses slide "layers" as a way to build presentations. For example, you put your text on one layer, an image on another layer, and the slide's background on a third layer. When the layers are viewed together, you have a completed slide.

Persuasion has also been beefed up with new chart types, in both 2-D and 3-D formats. And for specialized information, Persuasion includes polar charts, spectral charts, bubble charts, and high-low charts.

Even experienced users are sometimes confused when it comes to creating labels, axes, and other parts of a chart. That's where Persuasion steps in with some unique technology. When using the data form to create a chart, you can see a thumbnail of the chart. Choose the part of the chart you're working on from a pull-down list (such as "column header") and it gets highlighted in red. If you click on "Show column header," you'll be sent to the precise place in



A Friendlier Interface: Aldus Persuasion 3.0 has heen revamped so that it's now easier to use. Though it still has ties to its predecessor (such as creating slides by using a series of layers), the new floating palettes make features more accessible.

Easier than Ever: Creating a chart using the data form is a snap. with a thumbnail of the chart always visible and navigation tools easily accessible.

-	Set celum	the section	Mouton	headers	_	
-				RESORTS	_	
	7 Show colum					
	85		Category 1			
	A	2	8	C		
1	Sales Repults		-	Unit unlen		
2	For 1934			Income per	coupl	
3	Complative					
4						
5		Cate	gery 1	Category 2		
6	Electronics			50	60	
7	Plastics			45	- 51	
8	Series 3			40	51	
9	Series 4			36	45	
16	Series 5			30	41	

the data form where you need to type your data. This means that you don't have to spend time wondering what unfamiliar graphics terms mean; instead you can concentrate on doing your work.

You'll find other overall easeof-use enhancements in Aldus Persuasion 3.0, including floating toolbars and palettes for easy feature accessibility. There are also snap-to guides for more precise placement of text, charts, and graphics.

Adobe (the new owner of Persuasion) has beefed up the program's screen shows with extra features as well. It's now very easy to create simple animations. Embedding animation and sound files is also easy, giving you a no-fuss way to create

multimedia presentations. And you can use Autojump to create links that let you move to any slide in a presentation, to another presentation, or even to another program-handy for fielding audience questions.

Unpersuasive Despite all of these enhancements, some problems still plague this latest version of Aldus Persuasion. Although using the data form to create charts is simple, you'll find that placing the chart on a slide isn't nearly as easy. That's because charting is not a completely integrated part of the program.

And while Persuasion is easier to use than it used to be, it still doesn't stand up to a number of its competitors. For example, Persuasion's use of

USABILITY: Floating toolbars and nalettes, innovative data form, but charting module not completely integrated. \*\*\*

TECHNOLOGY: New animation and multimedia canabilities. \*\*\*

VERDICT: Fasier to use, but still isn't up to the standards of Harvard Graphics or Freelance Graphics. \*\*

# FILEBOX

#### Aldus Persuasion 3.0 for Windows

Competition: SPC's Harvard Graphics for Windows Lotus's Freelance Graphics for Windows, WordPerfect's Presentations, Microsoft's PowerPoint for Windows.

System Requirements: 386, 4MB of RAM, 7MB of hard-disk space (28.5MB for the full installation).

(800) 685-3641, (206) 622-5500 Reader Service No. 635

drawing layers as a way of creating slides is more common in drawing programs than presentation programs, and it takes some getting used to if you're already familiar with another presentation program.

Aldus Persuasion 3.0 doesn't quite stack up against the newest version of Harvard Graphics for advice on design or for ease of use. And even though the current version of Freelance Graphics is growing a bit long in the tooth, it still has Persuasion beat for elegance and overall ease of usc.

Persuasion users will want to upgrade to Version 3.0, but others should give Freelance Graphics and Harvard Graphics a look before being per-PRESTON GRALLA suaded.

\* Unacceptable

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# Flowcharting on a Budget

Many great ideas start out as scrawls SNEAK on cocktail nap-PREVIEW kins. But when

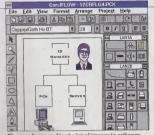
it's time to map out an idea or process for your business, notes from Ioe's Tavern just won't cut it. Whether you use workflow diagrams, organizational charts, or decision trees, there's a host of applications to choose from. Now there are two more: Corel's CorelFlow 2.0 and Micrografx's ABC SnapGraphics 2.0.

With the Flow CorelFlow 2.0 gives you the benefits of a rich feature set and ease of use. This CD-ROM-based package includes gads of tools and image libraries, with more than 2,000 predesigned shapes, photos, and clip-art images, and more than 100 True Type fonts.

To help you get started quickly and easily, CorelFlow displays ten types of sample diagrams. Each of these diaorams is linked to the appropriate Smart Library, which saves you from having to navigate through menus for the right objects. For example, if you're working on a network diagram, CorelFlow opens four LAN Smart Libraries with networkoriented objects and symbols.

All Smart Libraries roll up into one-line floating toolbars, and they're fully configurable, just like the program's other toolbars and palettes. You can also make your own objects and add them to the Smart Library of your choice. For only \$99, you'll be hard-pressed to find a more feature-rich package.

Learning Your ABCs ABC SnapGraphics 2.0 is great for the notoriously impatient nonartist. It's designed to be fast and easy with few extraneous frills. Getting started is a one-minute process: Choose a



Sharper Images: Need a lot of images to enhance your flowcharts and diagrams? CorelFlow's library of shapes, fonts, photos, and clip art makes it a graphical gold mine with easy drag-and-drop capabilities.



### ABC SnapGraphics 2.0

USABILITY: Constant handholding, perfect for impatient novices, \*\*\* TECHNOLOGY: OLE 2.0

compliant, Microsoft Office compatible. \*\*\*

VERDICT: An easy-to-use, low-end flowcharting and diagramming solution-at a cut-rate price. \* \* \*

#### CorelFlow 2.0

USABILITY: As easy as SnapGraphics with more features, \*\*\*\*

TECHNOLOGY: OLE 2.0 compliant, Microsoft Office compatible. \*\*\* VERDICT: Plenty of features,

easy-to-use, and priced to fly. \*\*\*

# FILEBOX

#### CorelFlow 2.0 Competition: ABC

FlowCharter, ABC SnanGraphics. Aldus's IntelliDraw. ShapeWare's Visio.

\$99 est, street price (800) 836-3729, (613) 728-8200

#### ABC SnapGraphics 2.0

Competition: ARC FlowCharter, CorelFlow 2.0 Aldus's IntelliDraw. ShapeWare's Visio.

\$99 est, street price (\$49 until March 31, 1995)

(800) 733-3729, (214) 234-1769

at such low prices. Competitors chart template from the Teminclude SnapShapes, SnapSteps, SnapText, and SnapLines-each start at \$100 and work their way up to four digits-and they of which makes using Snapoften don't include clip art, Graphics, well, a snap. Objects photos, or multiple fonts.

Split Decision For pure ease of use and speed, consider ABC SnapGraphics 2.0. For a wealth of images and powerful features, go for CorelFlow JAMES OLIVER CURY

plate Gallery and away you go. As with CorelFlow, once

you open a new template, corresponding palettes appear as floating toolbars. In addition, SnapGraphics automatically opens Quick Tips, which will hold your hand through the diagramming process. Other useful features in SnapGraphics and shapes can be edited, added, or deleted quickly. The program even includes presentation features such as a slide show, chart sorter, and drawing tools,

It's hard to find featurepacked applications like these

Guide to the Ratings:

\*\*\*\* Fxcellent

\*\*\*\* Good

\*\*\* Acceptable

\*\* Poor

\* Unacceptable JANUARY 1995

# **Do You Make These Six Common Mistakes On Your Taxes?**

Six common mistakes can cause you big headaches on your taxes. An oversight here, an omission there. From unnecessary tax payments to full blown IRS audits-vou can end up paving too much

or worse. But now, using TurboTax® or MacInTax®, you can avoid these simple but costly mistakes:

# The Arithmetic Error

Today, even the simplest forms contain complex calculations. And with all the late-night scrambling, an innocent mistake could cost you plenty.

The Transcription Error With all those numbers being juggled from schedule to schedule, it's no wonder the figures are so often transcribed incorrectly or entered on the wrong line.

The Omitted Form Even "ordinary" returns require

anywhere from six to a dozen forms to complete. It's easy to miss one or end up rushing all over town to find the one

The Misinterpreted Instruction

At hest, IRS instructions can be tough to understand. At worst they can be mind-boggling. What you need are clear directions in plain English.

The Overlooked Deduction You'd have to be a professional tax preparer to know all the deductions you're entitled to. If you miss just one, it could cost you hundreds of dollars.

The Exceeded Guideline The fastest way to trigger an IRS audit is to exceed the "normal" range on one of your deductions. You need to know what the IRS looks for on a lineby-line basis.

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ext. 42441

#### USABILITY: Turns an otherwise mind-twisting exercise into a few simple kevstrokes, \*\*\*

TECHNOLOGY: Amazing expert system does the statistical grunt work so you don't have to. \*\*\*\* VERDICT: Forecast Pro for

Windows will have you out of the office faster than you can say "exponential

Exponential smoothing Simple methods C Expanential smoothing Dynamic regression Expert selection smoothing."\*\*\* Multiple level expone Census X-11 data exploration of dependent variable RIBLINE 500 Length 144 Minimum 184,088 Maximum 622.888 Peek and Poke assical decomposition (multiplicative) Trend-cycle: 91.25% Seasonal: 0.16% Irregular: 1961 July 200 AIRI INF log transform recommended for Box-Jenkins. Trace Your Steps: Upper limit 726,647 Need to project your 604.373

?YJDDI

A. Feel like getting off the porch and running with the big dogs? statistical model in this pull-down list of all the notential models.

1959

Financial Forecasting for the Rest of Us

File Edit Graph Expert Model Fore

C. A forecast of airline round-trips was built by B. Peek and Poke gives you a quick readout of data (Yt), brain, and

1960

the values of three data

points simultaneously

high, mid, and low

trend lines.

by clicking on the graph button. D. The forecast and high and low estimates are represented as three lines extending

into the future.

modeling (Yt=) buttons.

It was then illustrated

future success? Forecast Pro for Windows has an audit trail where it keens a running log (above) of all financial analyses. You can save this log if you think vou're going to need the information later.

guess which of its forecasting models to use. A rules-based expert system takes care of that for you, and an excellent tutorial walks you through the brief. icon-driven process of building a forecast. And you can depend on the program's full index and glossary for definitions of all those two-dollar stat terms. Statistically Significant

OK, so you made the mistake

of mentioning that you once

pulled a median on a spread-

sheet range, and now everyone

at the meeting has voted you Most Likely to Forecast First-

Quarter Sales. The problem:

How do you complete this

assignment and still have a

life? The solution: Forecast

than a spreadsheet. Its best fea-

ture is that you don't have to

Forecast Pro is much more

Pro for Windows.

Forecast Pro and its bigger brother. Forecast Pro XE. include several variations on the most popular statistical forecast methodologies, including single- and multi-variable time series (stat-speak for examining, say, last year's electricity costs, usage, or both). You'll also find moving averages, dynamic regression for including multiple variables, Box-Ienkins for long data sets, and several methods of exponential smoothing. Its modeling tools will satisfy the most persnickety stat freak, but the program is really meant for the average businessperson who just wants to do the job-and get to the gym early.

The functionally identical Forecast Pro XE adds a few higher-level models that adjust for things like special events in conjunction with seasonal changes in data. But either product will find patterns in historical data that suggest the way the numbers will fall in the future.

The toughest part of using Forecast Pro is making sure the format of your historical data is consistent before you import it (the program works with spreadsheets, databases, and ASCII text, as well as via DDE links). Once your data is imported, it takes just a few quick clicks to build a forecast. Your data is then represented by a nice trend line, and the forecast is a line heading off into the future.

Easy as Lotus 1-2-3 Under the hood, Forecast Pro's expert system crunches your data 50 to 100 different ways to find the model that best fits. You can go with Forecast Pro's suggestion or you can override it in the event that you want to take another method for a walk and compare the results. For example, you might use moving averages to take a rolling 30- or

120-day slice of a stock price line in order to predict whether that line will go up or down over the next month. In addition to the quick way of comparing outcomes, Forecast Pro lets you withhold the most recent period of known results from the data set to check the accuracy of its prediction.

There are no dense data tables to pore over. Instead, use Peek and Poke to examine data points once they're graphed, to smooth lines by dragging points, and to have a Forecast Pro dialog box give you the date and value of a new point.

There are more elaborate (and more expensive) forecasting packages than Forecast Pro, and there are cheaper and less powerful alternatives. But for the occasional statistician, there's a 95 percent probability that Forecast Pro is your best MIKE HOGAN

### FILEBOX

#### Forecast Pro for Windows

Competition: SmartForecast, AutoBox.

System Requirements: Windows 3.1 or later. 2MB of RAM, 1MB of

hard-disk space. Technical Support: Unlimited free support, but not toll-free from 9 a.m. to 5 p.m. Eastern time.

File Import Options: Spreadsheets, databases, and ASCII text

Bonus: Full index and glossary features.

\$595 est, street price, \$995 for Forecast Pro XE (\$199 for upgrade to standard edition \$499 for upgrade to XE edition) **Business Forecast Systems** (617) 484-5050 Reader Service No. 618





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# Manages Files as Good as Gold

SNEAK PRFVIEW

If the built-in File Manager in Windows suits all of your needs, then

you're in the minority. File Manager doesn't compress, encrypt, or preview files, and it wouldn't earn two stars for usability. But people still struggle with it because the alternatives usually come in big utilities collections with big price tags and big learning curves.

Not so when it comes to XTreeGold 4.0 for Windows. It creates, expands, and even password-protects PKzipcompressed files. You can configure its file windows into various looks (including a Windows 95-like tree of all your system's drives). And once you've created a custom view, you can assign that view its own tab, and click to change

But perhaps the biggest



bonus is that XTreeGold expands Windows' common dialog-box engine to copy, delete, compress, expand, and view from every Windows

app's File Open dialog box. XTreeGold's file management isn't for everyone, but its dialog-box enhancements are MATTHEW LAKE addicting.

LISABII ITY: Unlearn Windows conventions—use XTree's one-key shortcuts, and

vou're sailing. \*\*\* TECHNOLOGY: Excellent file viewers, compression handling, and file

encryption, \*\*\*\* VERDICT: More useful than any other file manager we've seen, \*\*\*

# FILEBOX

#### XTreeGold 4.0 for Windows

Competition: Norton Desktop, PC Tools, Win7in, Windows' File Manager.

System Requirements: 386, 8MB of RAM recommended, 6.5MB of disk space.

Features: File management, 120 file viewers, encryption. PKzin support.

### **Network Central**

# Central Intelligence for Your Workflow

Files are never around when you need them. And even if you can find them with a few File Manager tricks, you can't always tell the status of workgroup projects from filenames or directories. First Floor's Network Central hacks its way through the documentmanagement jungle without arcane commands or daunting prices, For \$99, Network Central tracks who edited files and when, and lets you annotate them for subsequent readers.

You start by creating a folder for each project you're working on and selecting files you want associated with that folder. Instead of moving or copying



Total Control: Network Central shows your projects and folders in a directory tree (left) with tagged files (right).

these files, the program assigns "tags" within the folder to point to the originals. Click on a filename and the file either opens in its native application or shows its contents in a viewer. Add due dates, contact numbers, and responsible parties to a file's tag, and you have numerous ways to search for files later. You can even maintain control over sensitive files by specifying either complete privacy, limited shared access, or full public

access to any user.

Network Central melds workflow tools with file management elegantly, without hooking up to a dedicated server. If you have to manage the flow of documents in your group, it's a clean solu-IAMES OLIVER CURY **USABILITY**: Tracking files and comments in a workgroup situation is a breeze. \*\*\* TECHNOLOGY: Instead of duplicating or moving files, it uses tags (or aliases) to point to them. \*\*\* VERDICT: Network document

sharing made easy. \*\*\*

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files

and resources back at the office.

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# A road map for the

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PCWORLD

The ThinkPad 755 series has been hailed by nearly everyone, including PC World and PC Magazine.\*

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IBM.

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and the integrated

Mwave DSP

to 40MB)

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Better communications

- Mwave telephony

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Destination Europe	Add-On DOS, WIN	-\$49.95	\$39.95		
Destination Campground	Add-On WIN	-549-95	\$39.95		
Destination Golf	Add-On WIN	-\$19.95	\$19.95		
Destination Ski	Add-On DOS, WIN	-529-95	\$19.95		
Automap Streets (first map)	CD-ROM WIN	-649,95	\$39.95		
Automap Pro	WIN	-6399-00	\$249.95		

Add \$5.50 for shipping and handling, plus applicable sales tax. Prices good for a limited time only.

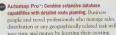
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### Rack-Mountable ProLiant 2000R 5/66

# Compaq Racks Up a Serve

This thing's bigger than the both of us., put orgether. But Compaq's refrigerator-sized Rack-Mountable ProLiant 2000R 57/68 obers many of the problems that growing networks face. For instance, by integrating up to six servers in a single enclosure, the nack design saves floor space. It also reduces your investment in monitors, keyboards, mice, and cable by enabling you to control all six systems from a single econsole.

We found the performance of the ProLiant 2000R superb and the design of its rack enclosure excellent. But with a street price of \$32,075, the system we tested is only for well-funded sites.

Open the Fridge Our test unit came in a Compaq 22U rack enclosure that stands some 4 feet tall, 3 feet deep, and 2 feet wide—a little bigger than the fridge in your hotel room. The Compaq 42U rack is more like 6 feet tall—definitely an enclosure you can look up to. What do you do with all that space?

Well, we installed a ProLiant 2000R configured with 64MB of RAM, a 66MHz Pentium, and four NetFlex-2 Ethernet cards. To supplement the five SCsI drive bays in the server unit itself, we added Compag's seven-slot storage subsystem. All of these components plug into a Deltee uninterruptible power supply (UPS) located at the bottom of the enclosure.

Fach item in the rack sits in a tray that rides on extending runners so you can pull any component out for service without shutting it down. At the back of each runner is a

ProLiant 2000R
5/66 and its short
rack (if 4 feet tall
is short) are
bigger than a
bread box. There's
plenty of room for
expansion (up to
three servers in
our enclosure),
and the vertical
expansion stack
saves precious
floor snace.

A Big Net:

Compag's

It's Faster...
and it's more
expensive.
That extra
money buys
you a lot of
expansion, but
small sites
may never

Racking Havoc

Overall File Server Performance

74% Faster

COMPACING MET 2008 546

65 PASSORES AND US

Baseline

MATERIAL SERVERS LOAD GENERATING

cable arm—a clever cable tray that keeps the wires inside the rack from becoming tangled.

need it.

By sliding out the ProLiant 2000R, loosening three thumbscrews, and pulling off a piece of sheet metal, we gained access to the server's brains: eight EBA slots, eight memory sockets (for up to 312MB of RAM), and two CPU slots (the Pro-Liant 2000R can house one or two CPUs). When you remove the cover, the server powers down, which is both a pro and a con: Nobody can cause severe electrical damage to the server's components, but you can't test a new configuration without zipping up the case.

Compagn includes two programs with the unit: SmarrSart and Rack Builder: SmarfSart is a collection of CD-ROMs that includes three operating systems optimized specifically for the ProLiant 2000R: Net-Ware, Windows NT, and SCO Unix System V. Rack Builder is a useful tool to help you configure the hardware in your rack. If you want to add a component, for example, Rack Builder will show you what that component

USABILITY: Some of the best management software we've seen. \*\*\*\*

PERFORMANCE: Top-notch server performance, none better. \*\*\*\*\*

TECHNOLOGY: Kudos for Compaq's unique Rack Builder utility.\*\*\*\*\*

Builder utility. \* \* \* \* \*
VERDICT: A perfect solution
for large sites that can
afford it. \* \* \* \*

### FILEBOX

#### Rack-Mountable ProLiant 2000R 5/66

Competition: Dell's Powerfdge 566 XE and HP's NetServer 5/66 LM. Features (as tested): 66MHz Pentium, 64MB of RAM, four NetFlex-2 Ethernet adapters, a UPS, and Compaq's Smart Arraydisk controller with

three 1GB disks.

Bundled Software:
SmartStart (a set of
CD-ROMs that includes
versions of NetWare and
Windows NT optimized to
run on the ProLiant) and
Rack Builder (a utility to
configure components
in the system).

\$32,075 est. street price Compaq Computer Corp. (800) 345-1518, (713) 370-0670 Reader Service No. 651

looks like, how big it is, and provide a Compaq part number to make it easier to order.

On Our Racks' The rack is neat, as is the included software, but when push comes to show, the ProLiant 2000R is designed for speed. We ran NetBench 2.10 on it running NetWare 3.12. The results of this test were impressive, with a peak throughput of 25Mbps with 20 NetBench chients. All told, the ProLiant 2000R 5/66 and its rack are a good idea if you're tight on space—and loose on budget. 104M NONTROMERY

# Hassle-Free Internet E-Mail

If you want to bring a TCP/IP novice up to speed on your network, you'll need something a little easier to use than the standard command-line Internet e-mail reader. Here's the solution: QualComm's Fudora.

"Wait a second," you snarl, "I can FTP Eudora over the Net for free. Why should I pay for it?" No reason at all if you're satisfied with the freeware version. In fact, Oual-Comm encourages you to try that version first (ftp.qualcomm.com). But be warned: The freeware is no longer supported or updated. And as a business user, you're going to want strong technical support. Besides, for as little as \$32 per seat, OualComm's Eudora isn't going to break your bank.

E-Mail It Your Way Eudora works as a WinSock 1.1-compliant application or as a dial-in package capable of reading mail from systems running VMS or Unix. Configuring the dial-in settings isn't as simple as it could be (digging into configuration files isn't our idea of intuitive), but once the program is running over SLIP or Ethernet, it's effortless to use and several of its features are hard to beat.

You can set Eudora to check for new mail messages periodically (every minute, if you like), and you can establish an entire set of hierarchically arranged mailboxes for storing messages efficiently. Eudora can also filter messages into these mailboxes automatically, or it can download them into the directory of your choice. Messages are stored locally, so users can view and compose mail even when disconnected from the network. Filed messages can be sorted by subject, sender, date, status, or priority, and Eudora lets you



Simply Eudorable: For full-function e-mail between PCs and Macs across a TCP/IP network, check out QualComm's Eudora, which eliminates platform-specific gateways.

Fine Filtering: Eudora makes it easy to organize and stay ahead of your e-mail by providing filters for subjects, senders, and keywords. You can also set up Boolean filters and write action rules to manage your mail. **USABILITY**: Useful features can be anickly mastered, weak online belt. \*\*\*

TECHNOLOGY: Innovative Internet e-mail access, strong

attachment support, \*\*\* VERDICT: Great TCP/IP e-mail solution for corporate Internet users, \*\*\*

A. Eudora lets you send and receive mail using eight different levels of priority—choose a setting from Highest to None

B. Nicknames are a handy feature for classifying department- or company-wide mailing lists. Double-click on the familiar Rolodex icon to view mailing groups.

C. Eudora's filters let you sort incoming and outgoing mail by subject, sender, or keywordhandy for keeping you organized.

D. Eudora supports Multipurpose Internet Mail Extensions (MIME), an important attachment standard for sending and receiving all kinds of multimedia file attachments.

Ep Down C Dateoner 2 由 Make subject: NTHL Editor

search the contents of messages. It's a snap to compose and send e-mail with Eudora. Its

editor supports familiar word processing functions such as undo, and you can easily attach multiple files to your messages, including spreadsheets, graphics, video, and sound files, Eudora supports personal

nickname mailing lists as well as department- and companywide lists. It conforms to standard Internet addressing rules, directly accessing any mailbox on the Net without the need for address entry and translation. And as a bonus, OualComm emails Eudora program updates to you as attached files.

There's not much to complain about in Eudora, Creating nicknames could be a little easier, the reply feature doesn't give you the option of not copying the original message into your reply, and the online help is very weak (something that Qual-Comm claims it will address in future upgrades). But you can easily forward received messages and even redirect incoming mail to another address.

Try Before You Buy The outstanding benefit of Eudora's dual existence as a commercial application and freeware is that you don't have to buy it to try it. Just download the freeware version and give it a test run. We think you'll like it enough to pony up the money for the version that comes with technical support. NEIL RANDALL

### FILEBOX

Eudora Network Requirements: SMTP, POP3.

Competition: NCD Z-Code Software Division's Z-Mail. System Requirements: 286 or later, Windows 3.1 or later. Ethernet card or modem for serial connection, Winsock 1.1-compliant networking package, at least 640K

\$32 to \$65 per seat, depending on number of users (800) 238-3672, (619) 587-1121 Reader Service No. 652

Guide to the Ratings:

Fxcellent

Good

Acceptable

of RAM

Poor

Unacceptable

# Here's The Easiest Way To Access Anyone On Any Online Service, From Anywhere.

Now anybody can use e-mail like a professional. Forget cryptic routing instructions, user IDs, and everything else. E-Mail Connection does all the work. At home, at work or away. From one on-line service to another. In a network or between them,

# Highlights

Now there's one easy-to-use e-mail package that lets you communicate through scores of on-line services, electronic postal delivery and fax.

L-Mail Connection is your single window to: CompuServe', Prodigy, MCI-Mail, cc:Mail; Lotus Notes', MS Mail' and Netware® MHS Systems.

Easily send, reply or forward any message-even arrach files E-Mail Connection's single interface makes e-mail management simple.

lt's so convenient it automatically signs-on to retrieve and send messages, whenever you wanthourly, daily or weekly. There's no need to jump between services to check your mail.

The E-Mail Connection Address Book even logs and files the names and e-mail addresses of the people with whom you communicate, automatically,

ner of 1994 Dvorak lecommunications ellence Award for Jutstanding PC communications E-Mail Utility



# Reviews

"E-Mail Connection offers so many benefits that I've made it my standard e-mail program.' Windows Magazine, Dec 93

"E-Mail Connection does the seemingly impossible: it makes electronic mail easy to use." Computer Shopper, Dec 93

"No other e-mail package comes close to the functionality and flexibility of E-Mail Connection 2.0."

PC/Computing, July 94

"...gets the job done better than any other commercial mail package I've seen."

Wall Street Journal, Aug 93

"E-Mail Connection is the default champion of e-mail collectors,"

PC Magazine, Oct 93

"We like the flexibility and routing capabilities E-Mail Connection offers.'

Infoworld, June 94

On the road, E-Mail Connection's Global Phonebook gives you online service access numbers for hundreds of cities worldwide.

See for vourself why E-Mail Connection is "Your best connection to the world of electronic messaging, including fax and postal delivery."



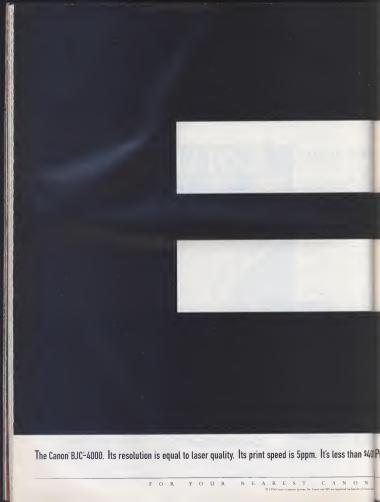








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Autodesk.

# LOGDOOK LONG-TERM TESTS: ScanMan PowerPage · Barracuda 2



# Turn Your Modem and Printer into a Fax Copier

More than three million Americans work the same way I do. We're employed by a corporation, but we do a lot of work at home. The problem: We can't justify the purchase of photocopiers, fax machines, and other work necessities for our home offices—nor can we afford the space. So we get by with a PC, a fax modern, a printer... and that's about it.

At least that's how I struggled before I got my anxious hands on Logitech's Scan-Man PowerPage. This foot-long grayscale

scanner and its simple software expanded up printer and fax modem into a photocopier and an honest-to-goodness fax machine. All I had to do was plug it into my spare parallel port (lucklity, I had one left over after hooking up my printed and install the software (which included yet another copy of Deltina's WinFax 3.0 for my private collection).

Now, whenever I need to send a fax or make a photocopy, I slip paper into the scanner. It detects the paper and kicks up a control-panel button but that has four buttons Picture, Text, Copy, and Fax. If I want a TIFF file or text recognition, I click on one of the first two buttons. More often I want to run off a convenience copy or need to send our a fax.

Actually, ScanMan PowerPage doesn't just replace a fax and photocopier it's better than any fax machine and photocopier that sells for \$449. I hat shiny fax paper, and I have no patience for the fiddly control panels those machines have. And no copier I could afford reproduces graphics as well as ScanMan PowerPage and my Jaser printer.

MATTHEW LAKE

ScanMan PowerPage / Logitech / (800) 231-7717 / \$449 est. street price / Reader Service No. 756

#### Logbook Entries:

August 22, 1994: It's 8 a.m. and I have a meeting docuntown. But I still have a "How It Works" sketch due for a 9 a.m. meeting at the office. OK, I'll fax it. The office fax machine doesn't respond, so I scan it and e-mail it.

September 15, 1994: Did my quarterly expenses. Total line items for photocopies and faxes: zero. I'm happy; the local copy shop isn't.

October 2, 1994 (Sunday): Windows 95 ate my homework! And there are no undelete tools in my beta. But I have draft printouts— ScanMan PowerPage's OCR module saves the day.

November 13, 1994: At Comdex I'm faced with a sheaf of articles to edit and two choices: pay \$2 a page for the hotel fax service or leverage my fax modem with ScamMan PowerPage.

#### **Logbook Entries:**

Edinous Elutics:

March 21, 1994: The Barracuda 2 smokes through performance tests and takes second place among all SCSI drives in our storage story ("Big Drives in Tiny Packages," April 1994: page 154).

August 31, 1994: I move the Barracuda 2 into my new Dell system and install Windows NT. The combination of the Barracuda 2 with a 32-bit operating system delivers amazing speed.

October 19, 1994: I'm working on a project that requires tons of disk space. The Barracuda 2's extra room lets me use my system rather than install another disk.



# Gigabytes to Spare

Don't let anyone tell you size doesn't matter, especially when it comes to hard drives. Because a large part of my job is to test new software, I'm constantly grappling with disk-space shortages. Then along comes Seagate Technology's Barracuda 2, a 2.1GB drive, and now my only problem is that I can't live without it. Having 2.1GB of space takes some getting used to. Now, when I install an application that takes up 30MB, I no longer worry about uninstalling an older one first. No more searching for the right combination of features and available disk space—I just check all the options. The Barracuda 2 easily houses DOS, Windows, Windows NT, Microsoft Office, Lotus's SmartSuite, and my bloated -mail file.

The Barracuda 2 is also one of the fastest drives I've ever used. The 12m access time and 1MB cache keep me blasting along whether I'm sorting a large database file or unzipping hundreds of files. It's been installed in two systems and attached to three different SCSI controllers. And when the price came down to \$1,500, it dowe beneath the dollar-per-megalyte price-point range. Big fish, small price, tremendous value.

ADAM WEERSON

Barracuda 2 / Seagate Technology / (408) 438-8111 / \$1,500 est. street price / Reader Service No. 757

# Intrdcng

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md-rnge



wrkstns.



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Cap Spitt	166MHz	233MHz	233MHz
SPECIHT92	107.7	157.7	157.7
SPEC++92	134,8	183 9	183 9
Xmanx 93	11.93	15,04	15 04
I/O SLOTS	2 PCI/ISA 1 ISA	2 PCI/ISA 1 ISA	2 PCI 3 ISA, 1PCI/ISA
Max I/O	132MB/sec	132MB/sec	132MB/sec
MAX MENORY	192MB	192MB	192MB

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you'll appreciate their
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# HOTOGRAPHS BY ERNIE FRIEDLANDER

# Notebook HELL

## SYNOPSIS

LAB NOTES: Four systems earned our Usability Seal. 126

can we dock? A guided tour of portable docking stations. 128

TRAVEL TIPS: Road warrior secrets. 129

TORTURE: Can they survive the ultimate road test? 130

RUN TIME: Performance results. 132

REVIEWS: A hands-on look. 136

PREVIEW: The next generation. 144

FINAL ANALYSIS: Pick the perfect portable. 146

REALITY BYTES: Charles Fleischer hits the road. 147 The memo you've feared for months finally arrived:
To cut costs and reduce support headaches, the
company hereafter will provide each employee with
one PC—any system within reason, choose your weapon
carefully. A devil's dilemma, you surmise. For productivity
and business presentations away from the office, you need

a portable. But your job demands the power, storage capacity, functionality, and usability of a full-featured desktop system. Can a notebook PC actually replace your desktop system?

This question drove our annual notebook roundup. We tested Is systems in four key areas that, as often as not, conflict with noe another, portability, durability, performance, and usability. Good performance, for example, suggests a 50MHz, 78MHz, or 100MHz 486 CPU. But what do these fast chips do to battery life? High usability requires a big, bright color display—but can notebook screen endure life's eruel knocks? Must you serrifice durability for usability—or performance? To find out, we devised an unprecedented suite of tests in these four key areas.

The systems in this roundup spent ten grueling weeks in both ZD Labs and PC Computing's Usability Labs. Scores of testers, technicians, and editors pored over the machines and test results. If we were left with any single conclusion, it's that notebook PCs today are desktop systems, plain and simple.

The compromises of using a notebook as your sole machine are vanishing. In terms of usability, color displays have gotten cheaper and better, pointing devices are more refined. Meanwhile, battery-charge life has grown to five hours or more in some cases, thanks to an alchemy of better power management, the better thanks to an alchemy of better power management, and the transfer of the color of and the production are production.

dual battery packs, and new technologies. And yes, today's notebooks are tougher than ever, as our torture tests reveal. While spilled coffee can still be fatal, most notebooks endure life's knocks far better than those built even one year ago.

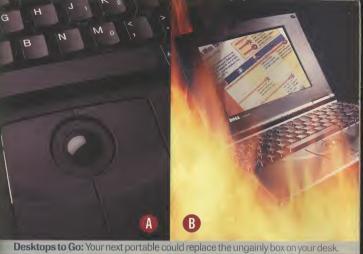
BY MARTY JEROME

A USABILITY: Peasized trackballs are history. Users prefer big center-mounted devices.

DURABILITY:
They're tougher
than ever, but only four
portables survived our
grueling torture tests.

PORTABILITY:
You can take it
with you. Innovations in
design mean today's
portables can go where
they've never gone
before—to a point.

PERFORMANCE:
An alchemy of
power management
and new technologies
extend battery charge
life on portables to
five hours or more.





# Fingers Do the Talking

Your fingers detect subtleties about notebook keyboards that could never be faithfully articulated.

This is why PC Computing's Usability Labs rely not only on what testers say about a keyboard, but on visible clues from videotapes of them at work and on timed typing tests. The same methodology is used for testing docking stations, connecting external monitors, and a host of other chores you're likely to face with a portable. We even rented airplane seats so testers could work from the incommodious confines of a Boeing 757.

When all was said and done, four portables scored high enough to win PC Computing's Usability Seal of Approval. If that number seems low, bear in mind that usability is where the competition among portables is most heated.

And it will likely remain so well into the future.





AT&T Globalyst 200 A full-sized wrist rest and large, concave mouse buttons around a big trackball draw high praise. The pointing-device button seemed stiff, but gave positive feedback," said a tester. The trackball is very accurate and the palm rest slopes at a perfect angle," said another. A third added, "The feel of the ball is the best I've come across."





buttons complement trackballs perfectly, according to our test results. "Big trackball buttons are convenient, especially on an airplane seat," claimed one tester. "The button click was light, as it should be, "said another. But a third commented," Backspace and Del keys are not normal. They require a search."

Dell Latitude XP 4100CX Big mouse

Guide to the Ratings:

\*\*\*\*\* Excellent



USABILITY
Approved

Austin Business Audio Echoing rave reviews for AT&Ts center-mounted trackball, testers said of the Business Audio notebook, "The pointing device is quick. The location of the ball ... is ideal." Another said, "The keyboard allows for quick touch-typing—the keys are big enough with adequate spacing. And the display is really bright, too."





SubNote Midwest Micro's Subnote provides a large trackball and full-sized wrist rest—a hit with testers. "This was one of the better trackballs I've used," said one. Regarding the keyboard, another said, "For being small, this layout had enough space to rest your palms; it works well."

MidWest Micro Elite Dual-Scan Color

# Contenders

Yes, it's getting better all the time. Even those that didn't earn our coveted Usability Seal have made vast usability gains over the past year.

USABILITY

\*\*\*

AST Ascentia 900N The "eraserhead"

\*\*\*

pointing stick was less well-liked than big trackballs, although testers preferred it to small trackballs: "It's difficult to double-click," claimed one.

The keyboard has a good tactile feel, but the right Shift key is to small," said another.

USABILITY

Compaq LTE Elite 4/75CX "I wish I had a

\*\*\*

palm restl" exclaimed one tester, complaining
that she had to move her hand away from the keyboard
to use the LTE Elite's screen-mounted trackball—but the
keyboard layout got high marks.

USABILITY

\*\*\*½

MidWest Micro Elite Dual-Scan

SoundBook Despite some curious key

placement, testers liked the keyboard layout and
response. Not so its tiny trackball: "The cursor skates

off the screen too easily."

USABILITY

\*\*\* NEC Versa V/50C While testers generally

\*\*\* liked the layout and response of the Versa

V/50C's keyboard ("a little mushy, but you adapt"), the small

rackball mounted perpendicular to the keyboard was given

poor marks all around: "Ittakes some getting used to."

USABILITY

\*\*\*

Panasonic V21 "Small trackball and heavy
buttons make life miserable," lamented one
tester. Others concurred: "I would not rate this unit highly."

USABILITY

\*\*\*\*

Texas Instruments TravelMate 4000M The

TravelMate's eraserhead, positioned below
the space bar, drew mixed reviews, though testers agreed
that keyboard layout and response were above average.

VSABILITY

\*\*\*

Toshiba Satellite T2400CT "The best
notebook keyboard," beamed one tester. Not so
the pointer: "Constantly overshoots targets," said another.

\*\*\*
touch pad: "Oversensitive to stray hand movements."

Twinhead Slimnote 5100T Testers loved the idea, not the implementation, of the Slimnote's touch pad: "Oversensitive to stray hand movements."

USABILITY

\*\*\*\*

Zenith Data Systems Z-NoteFlex The
Z-NoteFlex drew mixed reviews. "The
trackball should be centered," one tester complained.
"The keyboard is too spongy," said another.

# Can We Dock?

Once used primarily to connect notebook to network, docking stations now extend the full functionality of desktop PCs to your portable. But with more features such as CD-ROM drives and SCSI ports migrating onto the actual notebooks, more users

are turning to much simpler port replicators—devices that connect monitor, keyboard, modem, mouse, and network through a single adapter. All of the portables we tested offer an optional docking station, port replicator, or both. Some highlights:



Multimedia-Ready: Fully battery-powered, Texas Instruments' docking station includes speakers and a CD-ROM drive—ideal for traveling presentations.



Stocked: As big as a desktop system, NEC's Versa V/50C docking station includes two ISA slots, three drive bays, a host of ports, and a 101-key keyboard.



Big and Bulky: Some docking station implementations are better than others. MidWest Micro's solution forces you to use an external monitor and keyboard.



Trim Options: As well as the standard host of connectors, Zenith's port replicator features two more PC Card (formerly called PCMCIA) slots.



Net Result: Dell's port replicator includes Ethernet 10BaseT and SCSI connectors.

# Hotel Traveler's Guide

Plan ahead because business services vary widely.

	Fax Available to Guests?	Modem Jack in Room	Laser Printer and/ or Copier for Guests	PC for E-mail Available to Guests	What's Planned for 1995
Best Western (800) 528-1234	Varies	Vanes	Varies	Varies	More full-service hotels and business centers.
Fairmont Hotel (800) 527-4727	Yes	Yes	Vanes	Varies	No new services announced.
Hilton Hotel (800) 445-8667	Yes	Varies	Varies	Varies	Expanded personal fax services for executive-class rooms.
Holiday Inn (800) 465-4329	Yes	No	Yes	No	New business services for Holiday Inn Select business hotels.
Hyatt Hotel and Resort (800) 233-1234	Yes	Yes	Varies	Varies	More new Hyatt Business Plan rooms, featuring faxes and printers as well as access to copiers and other technology.
ITT Sheraton Hotel (800) 325-3535	Yes	Vanes	Yes	Varies	No new services announced.
Marriott Hotel (800) 228-9290	Yes	Yes	Yes	Varies	No new services announced.
Ramada (800) 228-2828	Varies	Varies	Varies	No	Many hotels plan to upgrade rooms for business travelers who need fax and modem hookups.
Ritz-Carlton (800) 241-3333	Yes	Yes	Varies	Vanes	No new services announced.
Westin Hotel (800) 228-3000	Yes	Yos	Yes	Varies	No new services announced.

Tray-Table Torture: PC Computing's Usability Labs used rows of real airplane seast to see how testers fared with the notebooks in a realistic setting. The findings? Large, center-mounted trackballs with palm rests work best in the cramped confines of your friendly skies. Also important to our testers were roomy, quiet keyboards. Why quiet? To avoid the angry glares and unsolicited attention of other airline passengers.

# Office Aloft

No one relishes setting up an office at 36.000 feet. Air phones and seat-back moden jacks have made it easier, but the low-tech annoyances of bad lighting and cramped quarters prevail. It's small wonder then that business travel plans increasingly take into account the type of aircraft and seating available.

If you have your choice of carriers ask about the type of aircraft to be used. The Boeing 767's 2-3-2 seating arrangement (two seats on each side, three across the center) typically provides the roomiest coach seating. Second best are the 2-3 arrangements used in DC-9s and MD-80s. Almost as good are the 2-4-2 arrangement used in -300s, and the 2-5-2 arrangement used in most DC-10s. MD-11s, and L-1011s.

The worst are the 3-3 arrangements used in old 727s, 737s, and new 757s. The 3-4-3 arrangements used in 747s and some DC-10s, MD-11s, and L-1011s are also dreadful.

On wide-body jets, seats behind doors provide greater leg room. On narrow-body jets, seats on emergency-exit rows tend to have greater pitch, which gives you more upper area work space. Seats behind the cabin bublished ensure that no one can recline into your lap.



# **Is Your Portable Tough**

TravelMate 4000M

Welcome to PC Computing's Abusability Labs. Our annual rite of baking, freezing, dropping, soaking, and otherwise torturing defenseless notebooks has not endeared us to the manufacturers of the 13 portables in this roundup. But the results of our tests tell you a lot about your machine's chances of survival against life's cruel knocks.

From the dead drives, cracked cases, and fritzed displays of this year's tests, we have good news to report: Notebook durability keeps getting better. Four of the thirteen machines survived scarcely worse for the wear—amazing when you consider the punishment they endured. Six emerged triumphantly from our drop tests, which is the most likely way to damage a portable.

The systems with stood extreme temperatures even better. All passed the first bake test (120 degrees Fahrenheit), and we lost only two portables on the second bake test (180 degrees). All of the systems passed both freeze tests (32 and 0 degrees).

Liquid spills on the keyboard, particularly sugary ones, still present a formidable threat to your portable, but nudging it off the edge of your desk (we used an automatic drop table in our tests) is still the surest way to kill it.

Product	Bake
Austin Business Audio	
Dell Latitude XP 4100CX	
NEC Versa V/50C	
Twinhead Slimnote 5100T	
AT&T Globalyst 200	
Toshiba Satellite T2400CT	
AST Ascentia 900N	
MidWest Micro Elite Dual-Scan Color SubNote	
MidWest Micro Elite Dual-Scan SoundBook	
Panasonic V21	
Zenith Z-NoteFlex	
Compaq LTE Elite 4/75CX	Died medium rare in the bake test.
Texas Instruments	Quickly last its cool

Enough?
Freeze Drop Dead on second drop test despite no physical signs of damage. drop test. RIP.

Survivor

Despite a crack in the display. no critical damage.

Triumph! (And handsome too.)

Emerged unscratched. unscathed, and ready

for work.

Survived all tests with only a mildly mangled touch pad.

Survived drop test only to be fritzed by a cup of joe.



Sparks flew from the keyboard when doused with coffee, then it died.

Failed the second



Like its SubNote sibling. it expired on the second



Didn't survive a second tumble.



Deep-sixed after a second drop.

**Drop-Dead Portables** Economists define durable

goods as ones lasting three years or more; economists who use portable computers are more realistic. While notebook durability is improving. engineers at Compag. Dell. and Toshiba agree that accidental drops are the leading cause of early death for notebooks, with screens. keyboards, and cases (in that order) being the most vulnerable components. Not surprisingly, the further the fall, the greater the harm. The good news? It's almost impossible to kill a hard drive these days, according to Toshiba engineer Keith Comer.

Guide to the Ratings:



Crash. Notebook failed; repairs required.



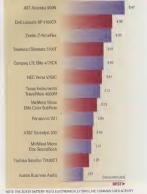
Survivor. Notebook passed all tests.

# **See How They Run**

It's not exactly magic, but every year notebooks run faster and last longer on a charge. Over the last ten months, 75MHz and 100MHz DX4 chips have edged out 33MHz, 50MHz, and 66MHz 486s as the CPUs of choice for color portables. Only four of the machines we tested (the notebooks from NEC, Toshiba, and Zenith, plus MidWest Micro's SubNote) use the slower chips. All of the systems use graphics accelerators; the most common is Western Digital's speedy RocketChip WD24. And as the performance results demonstrate, the technology delivers true desktop PC performance.

But what about battery life? Intel helps with its battery-conserving, 3.3-volt clock-tripled CPUs. Sophisticated power management helps too, as shown by ASTs Ascentia 900N, which profiles your work habits, then adjusts its power settings accordingly. The Ascentia 900N lasted more than five hours in our tests. New battery technologies, such as the lithium-ion used by Dell's Latitude XP 4100CX, are also stretching charge life.





**Performance:** Battery Life

The Inside Story
Big color displays and capacious hard drives fit in sub-seven-pound boxes. DAM

	CPU	RAM (Tested/Max.)	Hard Drive (Tested/Max.)	Display Type/Size	PC Card Slots	Dimensions	Weight/Weight With AC Adapter
Ascentia 900N AST Research (800) 876-4278; \$3,399 Reader Service No. 661	75MHz DX4	8MB/24MB	510MB/510MB	Active-matrix/ 10.4 inches	2 Type II or 1 Type III	8.5 by 11.5 by 1.8 inches	6.8 pounds/ 7.8 pounds
Business Audio Austin Computer (800) 752-1577; \$4,799 Reader Service No. 662	100MHz DX4	8MB/32MB	524MB/703MB	Active-matrix/ 9.5 inches	2 Type II or 1 Type III	8.6 by 11.1 by 2 inches	6.4 pounds/ 6.9 pounds
Elite Color SubNote MidWest Micro (800) 328-8855; \$1,999 Reader Service No. 663	33MHz 486SX	8MB/12MB	340MB/520MB	Dual-scan passive-matrix/ 9.5 inches	1 Type II	7.8 by 10.4 by 1.5 inches	3.9 pounds/ 4.9 pounds
Elite SoundBook MidWest Micro (800) 328-8855; \$2,999 Reader Service No. 664	100MHz DX4	8MB/20MB	520MB/520MB	Dual-scan, passive-matrix/ 10.3 inches	2 Type II or 1 Type III	8.5 by 11 by 2 inches	6.7 pounds/ 7.1 pounds
Globalyst 200 AT&T Global (800) 637-2600; \$4,530 Reader Service No. 665	75MHz DX4	8MB/20MB	250MB/250MB	Active-matrix/ 9.5 inches	1 Type II and 1 Type III	8.9 by 11.3 by 2.2 inches	6.3 pounds/ 6.8 pounds
Latitude XP 4100CX Dell Computer (800) 613-3355; \$4,799 Reader Service Na. 666	100 MHz DX4	8MB/36MB	450MB/524MB	Active-matrix/ 9.5 inches	2 Type II or 1 Type III	8.7 by 11 by 2 inches	6.1 pounds/ 6.9 pounds
LTE Elite 4/75CX Compaq (800) 888-5858; \$4,399 Reader Service No. 667	75MHz DX4	8MB/24MB	340MB/510MB	Active-matrix/ 9.5 inches	2 Type II or 1 Type III	8.9 by 11.8 by 2 inches	6.7 pounds
Satellite T2400CT Toshiba (800) 334-3445; \$4,099 Reader Service No. 668	50MHz 486DX2	8MB/24MB	250MB/320MB	Active-matrix/ 8.4 inches	2 Type II or 1 Type III	8.7 by 11.7 by 2.2 inches	6.5 pounds/ 7.0 pounds
Slimnote 5100T Twinhead (800) 242-9550; \$4,195 Reader Service No. 669	100MHz DX4	8MB/32MB	340MB/540MB	Active-matrix/ 9.4 inches	2 Type II or 1 Type III	8.9 by 11.6 by 1.9 inches	6.2 pounds/ 6.7 pounds
TravelMate 4000M Texas Instruments (800) 848-3927; \$3,799 Reader Service No. 670	75MHz DX4	8MB/20MB	340MB/340MB	Active-matrix/ 8.5 inches	2 Type II or 1 Type III	8.5 by 11 by 1.8 inches	6.6 pounds/ 7.2 pounds
<b>V21</b> Panasonic (800) 742-8086; \$4,199 <i>Reader Service No. 671</i>	75MHz DX4	8MB/20MB	250MB/250MB	Active-matrix/ 10.4 inches	2 Type II or 1 Type III	8.8 by 11.8 by 1.9 inches	5.7 pounds/ 6.3 pounds
Versa V/50C NEC (800) 388-8888; \$4,029 Reader Service No. 672	50MHz 486DX2	8MB/20MB	340MB/528MB	Active-matrix/ 9.5 inches	2 Type II or 1 Type III	9.6 by 11.7 by 2 inches	6.9 pounds/ 7.3 pounds
Z-NoteFlex Zenith Data Systems (800) 533-0331; S4,079 Reader Service No. 673	50MHz 486DX2	8MB/24MB	520MB/520MB	Active-matrix/ 9.5 inches	2 Type II or 1 Type III	8.7 by 11.9 by 2.2 inches	6.3 pounds/ 6.8 pounds



# The Highest Point In Notebook Computing... The ZEOS Meridian...

The Meridian includes the latest and hottest features: high-speed local bus video for super-fast video performance; two PCMCIA slots; a comfortable palm rest; and an 84-key keyboard with inverted "TruePoint" pointing device.

#### Highest Quality, Superior Performance & Power Up To 100MHz

Finally, desktop power to go. Travel around the world or to the highest peak. Work at home, in the office or on a plane. With the ZEOS Meridian line of notebooks, the choices are endless and the power is unearthly.

What makes the Meridian the perfect workmate? Durable, sturdy construction that will travel anywhere, incredible power and performance that will take you to new heights, and more options than a road map. To meet your needs exactly, we offer you power, speed and memory choices—genuine Intel 4868X-33 (400 only), 486DX2-50 or DMR-200 microprocessor, 4 or 8MB RAM user upgradable to 20MR-2 and IDE hard drives from 175MB to 550MB.

#### Meridian 400C Subnotebook

If you like to travel light, the Meridian 400C, at just under four pounds, is your ideal traveling companion and ultimate subnotebook.

The 400C features a 7.9" diagonal, STN color, backlit screen (7.9" active matrix and 8.2" monochrome backlit displays are also available) and two Type II PCMCIA slots. Packages 2 and 3 include an external ultra-light (9 oz.) 3.5" 1.44MB floppy drive.

## Meridian 800C Notebook

At six pounds and change, the Meridian 800C is light enough to travel anywhere yet it's large enough to use for presentations and regular desktop computing. You get the best of both worlds!

Unretouched photos of active matrix displays.





The 800C includes a generous 10.3" dual-scan color backlit screen for easy viewing (95" active matrix display is also available); two Type II or one Type III PCMCIA slots; and an internal 3.5" 1.44MB floppy drive.



#### **Buy With Confidence**

No matter which ZEOS notebook you purchase, you can be assured you're getting the best service and support in the business! ZEOS

has won six *PC Magazine* Readers' Choice for Service & Reliability awards. No company has won more. In addition, ZEOS

was the first to provide 24-hour toll-free technical support for quick and accurate answers to your questions.

Reach the highest point in notebook computing with the new ZEOS Meridian line. There's no limit With its durable design, awesome performance and technologically-advanced features, wou'll



be able to keep in touch with the office, write memos, organize your calendar, and work on priority documents—wherever you are. For power that will take you to the ends

of the Earth or to the highest peak, call a ZEOS Systems Consultant today at 800-554-5218.

### Standard With Every ZEOS Meridian:



➤ RAM expandable to 20MB.

- ➤ Genuine Intel® 486SX-33 (400), 486DX2-50 or DX4-100 microprocessor.
- ➤ 8K (DX4: 16K) internal system
- IDE hard drive upgradable to 350MB.
   High-speed local bus video with 1MB video RAM.
- ➤ Display: 640 x 480 color VGA backlit LCD,

- up to 256 colors. 400C: 7.9" diagonal STN
- color. 800C: 10.3" diagonal DSTN color.

  Supports an external SVGA color monitor
- at resolutions up to 1024 x 768.

  ➤ PCMCIA slots: 400: 2 Type II,
  800: 2 Type II or 1 Type III.
- ➤ 84-key keyboard with embedded numeric keypad and 12 dedicated function keys,
- inverted "T." ➤ Eraser-shaped integrated TruePoint"
- pointing device.

  ➤ Replaceable, rechargeable NiMH battery.

  ➤ Serial port, enhanced parallel port, external

- VGA video port, external keyboard or PS/2 mouse port (800 includes both). 400 also with external floppy drive port.
- Full power management features include Low Power mode and programmable Standby features.
- ➤ AC-DC adapter with full range from AC110-240V to DC.
- ➤ 400C: 7.8" x 10.2" x 1.7"; 3.9 lbs. 800C: 8.9" x 11.7" x 1.9"; 6.3 lbs.
- > EPA Energy Star compliant.
- ➤ FCC Certified Class B; UL Listed.

  ➤ ZEOS Customer Satisfaction package.

Processors	Package 1		Package 2		Package 3	
	400C	800C	400C	800C	400C	800C
486SX-33	\$1995		\$2295	-	\$2595	
486DX2-50	\$2095	\$2395	\$2395	\$2595	\$2695	\$2895
DX4-100	\$2495	\$2795	\$2795	\$2995	\$3095	\$3295
Screen Options	➤ 4MB RAM ➤ 175MB IDE h ➤ 800C: International floppy drive ➤ MS-DOS 6.2		➤ 4MB RAM ➤ 260MB IDE h ➤ 3.5 " 1.44MB f 400C: Externs ➤ Custom carry ➤ MS-DOS 6.2 ➤ Microsoft Win Workgroups 3 ➤ Lotus Organia	loppy drive, al, 800C: Internal ing case dows for	> 8MB RAM > 350MB IDE h: > 3.5" 1.44MB f 4000: Externa > Custom carryi Extra battery > MS-DOS 6.2 > Microsoft Win Workgroups 3 > Lotus Organiz	loppy drive, d, 800C: Internal ing case dows for .11

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# **S**mall Wonders

Look closely at the notebooks in this roundup and it becomes clear that last year's key innovations have become this year's industry standards. Nearly half of the machines we tested, for example, come with removable hard drives. Not only does this feature provide data security, but it helps trim costs at businesses that use notebook pools. Instead of purchasing a notebook for every employee, companies can buy every employee a hard drive, allowing several people to share notebooks on an as-needed basis.

Removable floppy drives are also becoming increasingly prevalent. The advantage? Swap the floppy out for a second battery to keep you productive on the 8:40 Delta Air Lines flight from New York to Los Angeles. While this year's portables include many such innovations and more, to qualify as a desktop replacement for this roundup, all had to meet several basic criteria. To match the power, expansion, and usability of desktop machines, all of the portables considered had to include a 486- or Pentium-class CPU, 8MB of memory, a color display, a 180MB or larger hard drive, and at least one PC Card slot. We also required a docking station or port replicator option for easy expansion. In the end, 13 notebooks and subnotebooks met our criteria and all weighed in at less than seven pounds without their AC adapters.

DELL LATITUDE XP 4100CX



# Wide-Ranging Latitude

Dell Computer has reentered the notebook market with a vengeance. Its Latitude XP 4100CX, the first portable developed by Dell's labs in more than a year, offers outstanding performance and battery life in a rugged package.

The Latitude trailed only a bit behind Texas Instruments' TravelMate 4000M and Twinhead's Slimnote 5100T in our Windows application performance tests, aided no doubt by its 100MHz DX4 CPU and Western Digital's RocketChip video accelerator. Zippy performance doesn't come at the expense of

battery life, either: Dell's notebook delivered a stellar 4 hours and 39 minutes of battery charge lifesecond only to that of AST's Ascentia 900N-thanks to Dell's lithium-ion batteries.

Best of all, you'll make the most of that charge life. A large center-mounted trackball resides just below the space bar, much like the pointer on Apple's original PowerBook. The Latitude's trackhall drew rave reviews from testers in PC Computing's Usability Labs.

Other highlights: The hard drive is removable and the memory is user-upgradable. There's more clatter to the keyboard than we usually like,

although its layout is shrewd. And despite the Latitude's conservative 6.1-pound weight, it still sports a bright and beautiful 9.5-inch active-matrix display.

The Latitude braved our durability tests with nary a scratch-surviving

in better shape than any notebook we tested. Let's be plain: the Latitude's solid performance, high usability, excellent battery life, and sturdy construction add up to the finest traveling machine you'll find.

USABILITY: PowerBookinspired trackball drew raves from usability testers, \*\*\*\*

PERFORMANCE: Among the fastest, thanks

to a 100MHz DX4 CPU. \*\*\*\*

TECHNOLOGY: Durable enough to survive all of our torture tests, \*\*\*\* VERDICT: The best

traveling six-pound machine vou'll find. \* \* \* \*

Pros: Stellar 4 hours and 39

### FILEBOX

minutes of battery life, and tough enough to weather the hard knocks of life on the mad Cons: A few notebooks bested it in performance-hut none surpassed the Latitude XP 4100CX in usability, portability, durability and value

Suitability: The Latitude's outstanding battery life and superb ergonomics make it an excellent road warrior-and a fine desktop replacement. The removable hard drive and user-upgradable memory leave room to grow.

Dell Computer (800) 613-3355

AST ASCENTIA SOON

# **AST's Ace in the Hole**



ASI's newest family of portables inherits a removable hard drive, superb keyboard layout, and crafty power-management utility from its predecessor, the Power Exec. But the new line now features a faster 75MHz D34 CPU<sub>2</sub> a Track-Point II pointing stick, a glorious 10.4-inch a trive-matrix color display, a half-gigabyte of storage, and 5 hours and 47 minutes of battery list—the longest of those we tested by more than an hour. Highly evolved, it is equally suited to travel or the daily office grind.

Sure, the Ascentia 900N has its drawbacks. It failed to boot after our second drop test, even though no damage was visible. And the AC adapter is also outdated—it could shink to about half its current size. Even so, the Ascentia's first-rate battery life, performance, and features more than offset these shortcomings.

ATAT GLOBALVST 200

# **W**orld-Class Traveler



Even its name bespeaks a traveling machine. True enough, AT&T's Globalyst 200 plays to wayfaring businesspeople on two fronts: communications and usability.

For example, almost all notebooks implement PC Card as two Type II slots or one Type III slot. If you use the slot for a second hard drive (Type III), where does your modem go? AT&I solves this by providing a Type II slot and a Type III slot—aconfiguration we'd like to see other portables adopt. The Globalyst also won high marks for its large center-mounted trackball, which resides on a full-sized

wrist rest (with big mouse buttons surrounding it).

The Globalyst's biggest drawback is its scant 2 hour and 49 minutes of battery life. But don't let this detail detract. The Globalyst's tiny AC adapter and solid construction make it a splendid traveling companion.

AUSTIN BUSINESS AUDIO

# **Desktop Workhorse**



To say that it sings understates the case. Austin Computer's Business Audio notebook comes with 16-bit stereo

sound—including speakers—built into the notebook itself.
But what really sings is the machine's performance,
thanks to a 100MHz DX4 CPU. It's a short song, however.
The Business Audio's battery-charge life—1 hour and 57
minutes—was the worst of the systems we tested. Better
power management would help.

Usability could use some help, too. A marble-sized trackball drops below the space bar with buttons on either side like mouse ears. It was too small for our usability testers.

In any case, you won't twit the machine for construction. Austin's Business Audio notebook gained a crack across the display during a drop test, but remained fully functional throughout.

#### TECHNOLOGY:

Sophisticated power management, crisp 10.4inch display. \*\*\*\* VERDICT: A highly explayed

machine. \* \* \*

#### FILEBOX

Suitability: The gorgeous 10.4-inch display, full-sized keyboard, and generous battery life make this an excellent double-duty system. Just make sure you don't drop it.

\$3,399 AST Research (800) 876-4278 Reader Service No. 661

TECHNOLOGY: Uses a shrewd PC Card configuration.\*\*\*'s VERDICT: High usability

marks on the road
and off, \*\*\*

#### FILEBOX

Surtability: Performance is middle of the road and battery life is scant, but the Globalyst is an excellent machine for business travelers who live by their modems.

\$4,530 AT&T Global Information Solutions (800) 637-2600 Reader Service No. 665

TECHNOLOGY: Less than two hours of battery life. \*\*\*

VERDICT: Durable, and
usability approved, but
no stamina. \* \* \* \* \*

#### FILEBOX

Suitability: A speedy multimedia notebook with built-in sound and speakers. But can you live with its short battery life and awkward pointing device?

\$4,799 Austin Computer (800) 752-1577 Reader Service No. 662 COMPAQ LTE ELITE 4/75CX

# **E**ngineering Feat



The only thing better than a small AC adapter is no AC adapter. In Compaq's new LTE Elite 4/75CX, the adapter vanishes entirely within the notebook.

But then, we've come to expect such things from Compaq. Indeed, the Elite teems with subtle refinements: Plugand-Play BlOS, a removable hard drive, and a splendid keyboard. If only we could convince Compaq to scotch the pea-sized, screen-mounted trackball, which our usability testers found awkward.

Performance on the 75MHz DX4-based portable was middling. Also to our disappointment, our machine died in the first heat test.

Battery life, on the other hand, was a respectable 3 hours and 50 minutes.

With all this functionality packed into a machine that still weighs less than seven pounds, the Elite makes an excellent traveling machine.

MIDWEST MICRO ELITE DUAL-SCAN SOUNDBOOK

# **Power User's Dream**



Sooner or later the quest for traveling power will introduce you to MidWest Micro's Elite SoundBook, a feature-packed desktop replacement that performed faster than any other notebook in this roundup. A 100MHz DX4 CPU coupled with a speedy hard drive give this portable more muscle than any we've tested.

Unfortunately, you pay for this brawn in battery life: only 2 hours and 41 minutes. In our durability tests, the Sound-Book died after the second drop. The pointing device was also a mixed bag: Centered on a large, welcome wrist rest

below the space bar, you'll find a disappointingly tiny trackball.

For short traveling presentations, however, MidWest Micro's SoundBook is a boon. It brings a large 10.3-inch dual-scan, passive-matrix color display and 16-bit sound to the show.

WIDWEST MICRO ELITE DUAL-SCAN COLOR SUBNOTI

# Four-Pound Wayfarer



There's no need to explain why the trackball on MidWest Micro's Elite Dual-Scan Color SubNote is bigger than the pointer on the machine's bigger and heavier sibling. We like it. We also like the SubNote's keyboard better than the fullsized notebook's, even though the Jayout is identical (it differs only in key size and spacing).

With only a 33MHz 486SX CPU, the SubNote certainly can't keep pace with the other machines in this roundup. But it provided more than three hours of battery charge life in our tests, which surprised us given its 3.9 pounds of weight

and large 9.5-inch dual-scan passive-matrix display.

The SubNote died on our second drop test, which means you'll want to treat it gingerly. But given its big screen and excellent keyboard, it's a great machine for airplanes, hotel rooms, and other business bivouacs.

TECHNOLOGY: Built-in

AC adapter. \*\*\*\*
VERDICT: Leading-edge
technology in a
6.7-pound

package. \*\*\*

# Suitability: It's not the fastest

Surramny: it's not the rastest motebook we tested, but if you're prone to forgetting your notebook's AC adapter, Compaq's lightweight LTE Elite 4/75CX is your machine.

\$4,399 Compaq Computer Corp. (800) 888-5858 Reader Service No. 667

TECHNOLOGY: Screaming fast and wired for sound. \*\*\*!> VERDICT: Lots of power—

but don't stray too far from an outlet. \* \* \* \*/2

#### FILEBOX

Suitability: A short battery life and clunky AC adapter make MidWest Micro's notebook better for short hops than long hauls. But how about that price?

MidWest Micro (800) 328-8855 Reader Service No. 664

#### TECHNOLOGY:

Yesteryear's 33MHz 486SX CPU. \*\*\* VERDICT: High usability in a 3.9-pound package. \*\*\*

### FILEBOX

Surtability: Featherweight companion for communications and word processing. The 9.5-inch display and full-sized keyboard earned high marks for usability, too.

\$1,999 MidWest Micro (800) 328-8855 Reader Service No. 66: NEC VERSA V/50C

## **V**ersatile Voyager



It's been two years since NEC introduced the highly innovative Versa line of portables, yet no notebook comes close to offering the expansion and malleability it provides.

Even so, the Versa V/50C is beginning to show its age. The machine's front-mounted trackball, for example, drew low scores in our usability tests. And the machine's 50MHz 486DX2 processor couldn't keep up with the 75MHz and 100MHz DX4s that are now standard fare for portables.

Despite these drawbacks, the Versa V/50C emerged from our rigorous set of durability tests without a scratch.
We still wonder why more notebooks don't let you swap the floppy drive for

we still wollder why more indebooks don't let you swap the hoppy driveror a second battery, as the Versa V/50C does. And we'll take the Versa V/50C's excellent keyboard layout, LED status indicators, and crisp 9.5-inch display over those on dozens of competing notebooks.

PANASONIC V21

# **Q**uick-Change Artist



Building on the terrain pioneered by NEC's Versa, Panasonie's V21 notebook lets you swap out the floppy drive for a second battery or a 3.5-inch CD-ROM drive. Intended for vertical applications because of its nonstandard size, the CD-ROM drive uses a caddyless drawer that slides out of the side of the notebook.

The machine drew almost 3 hours of battery-charge life in our tests (on one battery), in spite of a power-slurping 10.4-inch active-matrix color display. The gorgeous screen aside, the Panasonic's ergonomics need help. Its awkward

pea-sized trackball resides below the space bar with dime-sized buttons on either side. And although the display can be flipped and reattached so that the notebook becomes a pen tablet, pen computing itself awaits better software before businesspeople will flock to it.

TEXAS INSTRUMENTS TRAVELMATE 4000M

## **M**ultimedia Marvel



Quick tip: If you buy Texas Instruments' excellent Travel-Mate 4000M notebook, you'll definitely want its docking station as well. The duo provides first-rate multimedia capability in a compact, handsome package. In fact, with a total travel weight of less than 12 pounds—fully battery powered—you may very well find yourself taking the docking station along for your next business trip.

With or without docking station, performance on the 75MHz DX4 portable is enviable. So are its 3 hours and 31 minutes of battery life.

The TravelMate's 8.5-inch active-matrix color display is small but crisp. A TrackPoint II pointing stick is situated (oddly) below the space bar on a small, sloping wrist rest. No matter: The TravelMate 4000M provides the best way possible to take a multimedia presentation on the road.

TECHNOLOGY: Highly

VERDICT: Tough and innovative, it lacks only a faster CPU and better pointer. \* \* \* ½

#### FILEBOX

Surtability: Versatile and durable, with a reserve battery to keep you productive on long hauls. We only wish it came with a faster 75MHz or 100MHz processor.

S4,029 NEC Technologies (800) 388-8888 Reader Service No. 672

TECHNOLOGY: A true

CD-ROM drive—but
for 3.5-inch CDs. \*\*\*
VERDICT: Nice innovations,
begs for better

ergonomics, \* \* \* 1/2

#### FILEBOX

Suitability: The V21's ergonomics need help, but it's a solid machine for long distances on batteries or for vertical CD-ROM applications.

\$4,199 Panasonic (800) 742-8088 Reader Service No. 671

TECHNOLOGY: Superb multimedia docking

station. \*\*\*\*\*
VERDICT: A few ergonomic
nits, but leading-edge
technology. \*\*\*\*\*

#### FILEBOX

Suitability: Coupled with TI's battery-powered docking station, the TravelMate is the best way to take a multimedia presentation on the road. It's not a bad desktop replacement, either.

\$3,799 Texas Instruments (800) 848-3927 Reader Service No. 670 The color laser printer
that's so hot,
even the reviews
are glowing Company



Kyla Carlson, PC Computing

The "first real color laser...
The Xerox 4900's output is, in a word, dazzling."

"Xerox has certainly set some new color quality standards that may send other quality standards that may send other yendors back to the drawing board."

Marco Boer, International Data Corporation

THE DOCUMENT COMPANY XEROX



The 4900 is fast and the print quality is equally impressive."

Frank Hertz, VARBusiness

"Through its resellers, Xerox will be able to communicate its big company commitment to customer satisfaction. That is a highly credible story, a story office system administrators will

Michael Zeis, Color Business Report

Juad dot enables Xerox to convey more real data in n image using the same number of pixels as other pproaches. In the 4900, the combination of laser nodulation and quad dot halftoning result in much higher quality halftones & very fine resolution."

harles LeCompte. The Hard Copy Observer

Charles A. Pesko Ventures, Inc. There is currently no better combination of color and black and white laser printing in a single system. Xerox has delivered a powerful product.



The news is out. The Xerox 4900 Color Laser Printer is so hot no other printer can touch it. Not that everyone else hasn't tried. They found ... as you will too ... our benchmark Quad Dot color imaging technology is unbeatable. And this level of quality has never been more affordable.

It's now available at any desktop near you ... the finest quality laser image (up to 1200 x 300 dpi) Total Satisfaction. Guaranteed. of any workgroup printer in its class. Period. From speed (3ppm color/12ppm b&w) to ease of everything, the 4900 is one printer that can help everyone in your group do better work. And with the Xerox Total Satisfaction Guarantee, it's the one you can be sure of. Because we'll guarantee your satisfaction for three full years. Call us at 1-800-ASK-XEROX, Ext. 314 for more information and some great samples hot off the printer.

TOSHIBA SATELLITE T2400CT

## **B**uilt to Impress



The newest member in Toshiba's Satellite family, the T2400CT, comes poised for multimedia. A SCSI-2 port for connecting a CD-ROM drive is standard. As with Texas Instruments' TravelMate 4000M, the T2400CT's active-matrix color display is small—8.4 inches—but bright and crisp.

Performance is respectable given the portable's 50MHz 486DX2 processor, although we'd like to see Toshiba put a 75MHz DX4 CPU in the upgrade. The 12400CT's 2 hours and 29 minutes of battery life was disappointing, however-especially given the machine's 6.5 pounds of girth. Chalk it

up to solid construction: The T2400CT withstood both drop tests without a hitch. It died only during the spill test.

Usability gets high marks, thanks greatly to the AccuPoint pointing stick.
Kudos also to the T2400CT's tiny AC adapter and first-rate keyboard.

TWINHEAD SLIMNOTE 5100T

## **B**rave New Design



Every portable from Twinhead brims with bold design, and the Slimnote 5100ff is no exception. The first Windows note-book to use a touch-pad pointer, it also features a removable hard drive and a floppy drive that can be swapped out for a second battery, a SCSI module, or a TV tuner, plus full 16-bit sound. There's even an optional infrared port.

The Slimnote 5100T was the third fastest notebook in our Windows application tests. It managed almost 4 hours of battery-charge life, and it emerged from our torture tests almost unscathed.

The touch-pad pointer situated below the space bar was very easy to adapt to and provides all the click-and-drag operations you'd expect from a mouse. But a large optional trackball can be swapped in its place for those who prefer it. Such versatility makes the Slimnote an excellent traveling machine.

ZENITH DATA SYSTEMS Z-NOTEFLES

## **A** Refined Companion



Zenith Data Systems' new family of portables leverages the best of the Z-Note series with greater modularity and multimedia, plus a decent pointing device. Both the hard and floppy drives are removable, and the floppy drive can be swapped for a second battery. Full 16-bit stereo sound is integrated into the notebook and a large trackball is situated below the space bar.

Like its predecessors, the Z-NoteFlex maintains sleek styling and an excellent keyboard layout. The trackball is surrounded by two large mouse buttons, all within easy reach.

Performance was below average in this roundup, owing to the portable's 50MHz 486DX2 CPU, although the Z-NoteFlex is fast against comparable machines. Battery-charge life, on the other hand, was quite good: 4 hours and 33 minutes. For travel, we'd happily swap power for battery life.

TECHNOLOGY: Built-in SCSI, slow CPU. \*\*\* VERDICT: Brings high ergonomics and multimedia to your travels. \* \* \* \* 1/2

#### FILEBOX

Suitability: The machine's built-in sound and SCSI-2 connector for a CD-ROM drive make this a worthy—if somewhat underpowered—deskton replacement.

\$4,099 Toshiba America (800) 334-3445 Reader Service No. 668

TECHNOLOGY: Leadingedge pointing device and infrared option. \*\*\*\*\* VERDICT: Sturdy, fast, and

innovative—an excellent machine. \* \* \* \* \* \*2

#### FILEBOX

Suitability: Multimediaequipped for traveling presentations and desktop applications. The removable hard drive and floppy make it wellsuited to a wide range of tasks.

\$4,195 Twinhead (800) 242-9550 Reader Service No. 669

TECHNOLOGY: Highly modular, built-in sound. \*\*\*'s VERDICT: A versatile

VERDICT: A versatile companion for long hauls. \* \* \* \*

#### FILEBOX

Surtability: High usability and long battery life make the Z-NoteFlex a worthy traveling companion. Built-in sound makes it a civilized desktop replacement as well.

S4,079 Zenith Data Systems (800) 533-0331 Reader Service No. 673

# Step into the Future with Everex STEP Note



#### **Built-In Upgradability**

Four steps to the perfect portable:

Step 1 - upgrade the CPU from 486SX-33 through IDX2-50 to Intel DX4-75

Step 2 - upgrade the display from mono STN through color DSTN to TFT

Step 3 - upgrade the removable hard disk from 120MB through 250MB and 340MB to 514MB Step 4 - expand your options with fav/modem, Ethernet, SCSI and other PCMCIA cards

#### Road Ready Multimedia

Integrated digital audio chip set and sound generator lets you record, compress and play back. The Everex STEP Note includes built-in speaker and microphone, plus a jack for external ones.

#### Reliability & Service

The Everex STEP Note carries on the Everex tradition of reliability. We also include a 2 year warranty for additional peace of mind.

486SX mono starts at \$1,495. 486SX color starts at \$1,995. Intel DX475TFT starts at \$3,495.



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7AM to 5PM, Pacific Time









# **Next Generation**

Even before we finished evaluating today's state-ofthe-art portables, a new generation was lurking in the wings. Five machines that were unavailable in time for our grueling torture, usability, and endurance tests have now hit the streets. Each brings a unique suite of technologies or design to the mobile computing party, All deserve your scrutiny.



Pack It: Hewlett-Packard's subnotebook packs an 8.5-inch color screen and an infrared port.

OmniBook 600 FIP's new OmniBook 600 has also matured into a feature-rich featherweight. Backlighting and a splendid 8.5-inch dual-scan, passive matrix color screen are new to the subnote-book. It also comes with infrared as well as two Type II PC Card sots. a removable hard

drive, and the crafty mouse-on-a-stick.

OmniBook 600 / Hewlett-Packard / (800) 443-1254 / \$2.800.50MHz 488DX2:

\$2,800, 50MHz 486DX2 \$3,500, 75MHz 486DX4 / Reader Service No. 674

Portégé T3600CT Also worth a look is Toshiba's newest offering the 4-p ound Portégé T3600CT. Although we couldn't get our hands on one in time for the extensive testing for this story, the Portégé T3600CT sweep the portable category in our annual Most Valuable Product Awards (see "The Editors' Choice;" December 1994, page 128). Still 101 ot convinced? The 50ME/t 486DX2-powered subnotebook was also chosen by our editors as overall best product of 1994.

Portégé T3600CT / Toshiba / (800) 334-3445 / \$3,599 / Reader Service No. 675

Sharp PC-8900 Sharp Electronics has reentered the portable market with its sleek new PC-8900, a 6.2-pound notebook with an infrared port. The infrared interface means it can exchange files with one of Sharp's tiny Wizard electronic organizers, as well as any device that supports the IRDA wireless standard such as Apple's Newton and Hewlett-Packard's desk-top PCs. The 75MH2 #86DX+-powered device factures a brilliant 10.4-inch active-marix display, removable hard drive, and floppy drive that swaps out to hold a second battery on the road.

Sharp PC-8900 / Sharp / (800) 237-4277 / \$4,500 / Reader Service No. 676 ThinkPad 755CD Far and away the most innovative of the new generation of portables is IBM's ThinkPad 755CD. This addition to the successful ThinkPad line features a fullduplex speakerphone that includes answering machine features, an infrared port, and a host of other innovations. Lift up the keyboard and vou've got direct access to the



Spin It: IBM's 755CD lets you spin full-sized CD-ROM discs and includes a full-duplex speakerphone.

meret access to the removable hard drive, floppy drive, and the nickel metal-hydride battery. Just swap out the floppy drive and you can replace it with a full-sized caddyless CD-ROM drive. Add to that list two PC Card Type II slots, sound capability, plus an integrated 14.4Kbps modem and an optional 810MB hard drive—and the ThinkPad family packs more features than most desktop PCs.

ThinkPad 755CD / IBM / (800) 426-2968 / \$7,599 /

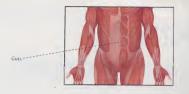
Versa M NEC has also upgraded its Versa family of portables, which pioneered the modularity found in many of today's notebooks. The new machine, dubbed the Versa M, features a removable 9.5-inch active-matrix display in one of three flavors: standard VGA, high-resolution, or true color. The high-resolution screen is the first LCD notebook display to support resolutions as high as 1,024 by 768 pixels,

and the true-color screen displays a spectacular 16.7 million colors simultaneously at 640-by-480-pixel resolution. The Versa M also offers 16-980 sound (with speaker and microphone), an optional 810MB hard drive (removable, of course), and two Type IIPC Card slots.

Versa M / NEC / (800) 388-8888 / \$6,799 / Reader Service No. 678



See It: NEC's modular Versa M features the first 1,024-by-768pixel and true-color LCD displays.





The leanest, meanest, all-in-one software for word processing, spreadsheet, database, charting, drawing, painting, and presentations.

### What it takes to run your own business in the 90s.

#### New ClarisWorks 3.0 for Windows

You've got the stomach for it, now get the software. ClarisWorke<sup>8</sup> 3.0 software has what it takes to manage your office tasks and succeed in the "gotta have it by yesterday" 90s. No wonder three million" users worldwide have discovered it's all the power you need without useless features that slow you down.

With Claris Works, you can churn out letters, memos, reports, budgets, presentations, proposals, sales flyers, mailing labels, contact lists, newsletters—virtually anything you need to run your business.

ClarisWorks integrates all the functionality of six software applications into one—with a streamlined feature set

Function	Key Features
Word processing	Multi-columns, text wrap around graphics, spell check and thesaurus
Spreadsheet & Charring	100 functions, 12 chart types, flexible chart formatting
Database	Custom reporting, mail merge, pop-up lists to speed data entr
Graphics	Over 30 drawing and painting tools, gradients (color blends)
Presentations	On-screen presentations, master background, play AVI video

and responsiveness that gets the job done fast. For example, you can easily add graphics, charts or a spreadsheet to your text in a couple of mouse clicks. Need to get a document out fast? Let Claris Assistants step in to do the hard work for you. Assistants guide you through complex tasks like creating tables, and provide expert advice on design for newsletters, presentations and more. You'll also find 150 push-button "Shortcuts" that reduce routine tasks to one mouse click.

Unlike other "Works" and "Office" products, Claris Works has much smaller memory and storage requirements. Its compact design and high performance makes it ideal for notebook computers! And if you want to share Microsoft Word or WordPerfect documents and Excel or Lotus 1-2-3 spreadsheets, no problem—Claris Works instantly opens and saves these formats and many more.

Call to order ClarisWorks or see your Claris dealer today. You've got the guts, now go for ClarisWorks. What it takes to succeed in the 90s is a fast phone call away.

#### Free with your order!

Try ClarisWorks 3.0 today with a risk-free 30-day money-back guarantee and get SofNet's faxWorks (a \$29 alue for faxing directly from your faxmodem) absolutely free!

Available in Canada for \$129 by calling 1-800-361-6075.

What his modelest side of Chembrids for Wadnes and Chembrids for Wadnes and Chembrids for Wadness and Chembrids for Wadness and Chembrids for Wadness 13 for little, backed down and 45 HR KMJ, 17 flagsy side dress, VKL or letter radio, and maximal frequent per madula the HL So of yolder or percept (20, 1975). Giff in Monarch print Dermon general to the Stage of the recognition of the Market side of the Stage of the recognition of the Stage of the Stage of the Monarch print General to the Stage of the Stage o

CLARIS







## One PC? You Bet

The idea of owning and maintaining only one PC is on appealing, so utterly seductive that there must be a catch, right? Two years ago, this would have been a tenuous arrangement. But as our tests confirm, notebook design has reached a level of refinement that should give you no hesitation in forsaking the clunker on your desk. How do you find just the right double-duty notebook? Our testing answered some fundamental questions:

If I truly want to make a portable my sole PC, what is the most important feature to look for? Versatility. Technologis that let you tailor your system not only according to the office or to travel, but to the kinds of work you plan to accomplish in each setting, fare best. Removable hard drives, for example, provide simple upgrade paths and data security. Floopies that swap out for a second battery keep ou productive on international hauls. Integrated sound dresses up traveling presentations, and PC Card slots and SCSI ports—on the notebook or the docking station—widen your expansion options.

In terms of usability, should I worry just about the feel of the keyboard and pointing devices? Keyboards and pointing devices Charlest any discussion of notebook usability because they most directly influence how much work you'll accomplish with your portable. But display size and carriy are also key for the same reasons. So are the accessibility of ports and PC Card slots; the ability to upgrade your own memory, hard drive, and display; and the case with which you can swap out batteries or change power-managements ettings.

Are subnotes good desktop replacements? Yes, but not by themselves. Don't even consider using a subnotebook as your sole machine without a port replicator or docking station, an external monitor, and, in most cases, an external keyboard.

Is there any reason to consider a monochrome notebook? Not as a desktop replacement. The price difference between color and monochrome models is negligible, and when working long hours in a graphical interface, your eyes will beg for color.

Choose the factor that's most important to you.	Choose the next most important factor.	3 What else is important?	For your needs, the best product to buy is
		Performance	Dell Latitude XP 4100CX
	Portability	Battery Life	Dell Latitude XP 4100CX
Usability		Performance	Austin Business Audio
	Durability	Portability	Dell Latitude XP 4100CX
	Performance	Usability	Austin Business Audio
B 1333		Expandability	Twinhead Slimnote 5100
Durability	0. 122.	Portability	Dell Latitude XP 4100C)
	Usability	Battery Life	Dell Latitude XP 4100C)
	D. 11 176	Usability	AST Ascentia 900N
Danfannana	Battery Life	Price	AST Ascentia 900N
Performance		Durability	Twinhead Slimnote 5100
	Price	Battery Life	AST Ascentia 900N

# **Nightmare** at 37,000 Feet

Tt's night. I'm on a glistening silver 757 that's cruising at 37,000 feet. Jet turbines turning, ring laser gyros burning, all 188 seats filled. I'm standing at the back looking up the aisle toward the cockpit. There's a strange glow coming from the seats. I

Before I can return to my seat.



look closer and see that everyone has a laptop opened in front of them. Grandmothers, little kids, rednecks, businessmen, priests, everybody has a notebook, and they're all playing solitaire.

Galileo and two men, one dressed like a tall Robert Conrad from The Wild Madame CURIE Wild West, and one dressed like a short Robert Goulet from Camlinguini for 15, elot, burst from the bathroom waving guns and screaming, DRUNKS, dullards, "Your laptops or your lives!" The squat, slack-jawed man and hamfists ... (Goulet) collects and stacks the notebooks, the tall one lashes These NOTEBOOK them to a parachute sled and they disappear into the darkness.

REAL situations
with FREUDIAN
significance,

like the following:

The challenge: People dropping their notebooks.

The test: In what I called the "Galileo Test," I dropped 20 leading notebooks from a telephone pole onto the street below.

The results: The only one that didn't shatter into a pile of useless rubble was caught and stolen by a 64-year-old midget who was hiding with a net behind a parked Fiat.

The challenge: People spilling hot drinks.

The test: In what I called the "Linguini for 15 Test," I boiled 15 leading notebooks, each in its own 5-gallon pot, just long enough to make an al dente linguini. (As

a control, I included 8 ounces of pasta in each pot.)

The results: Major disappointment. All of the machines failed. When will they make a computer that can stand a little moisture?

The challenge: Radioactivity destroying your note-

The test: In the "Madame Curie Test," I placed 10 notebooks in a lead room and irradiated them with enriched uranium, emitting lethal gamma rays.

The result: The machines are still too hot to examine, but within about 50,000 years I think we'll have some pretty substantial data on notebook isotopes and the survival of your spreadsheets after a nuclear exchange.

The challenge: Usability of pointing devices and keyboards.

The test: I assembled three groups of 20 people each. One group had IQs of less than 27, another had blood alcohol levels in excess of 0.5 percent, and the third had minimal manual dexterity.

The result: Surprisingly enough, a few of the tipsy people did the best in the "DUI Test." Some of the blockheads were only pretending to be so, and the butterfingers had a rough go of it.

In conclusion, my advice to the notebook industry is to build a sturdier unit and make it cooler looking. People want snazzy sci-fig gizmos. Meanwhile, the idea of a docking station has deep Freudian significance and will help to sell your machines.

I decided I'd try to get back to sleep, Soon I found myself dreaming again. Suddenly, I'm in the middle of a South American rain forest. High in the treetops I see monkeys with notebooks, I look closer to see if they're playing solitaire. They're not. They're all on the Internet.

CHARLES FLEISCHER is a comedian who would like to find a notebook that will walk his dog.

iewSonic has become
synonymous with providing
superior high performance color
monitors to a demanding

industry. As a recognized price/performance leader, we are committed to designing outstanding monitors that continue to win awards. In fact, here are some comments from a few editors:



"Some folks crave performance. Some look for price. And then there are those who want it all. If you belong to the

tbird crowd, the ViewSonic 17 is the monitor for you." – PC World; April 1994



"Best color quality, best sharpness and best versatility – what more could we ask of the ViewSonic 17?

Frankly, we were surprised that one monitor could do it all."

- PC Computing; January 1994



"ViewSonic bas one of the sbarpest, most detailed and well-focused displays around."

- Windows; September 1994

Our new ViewSonic 17 monitor is loaded with features including OnView\*\* controls (on-screen menu to adjust screen images to your liking), ViewMatch\*\* (matches screen colors to printer output), ARAG\*\* coating (virtually eliminates screen glare and reflection), and refresh rates up to 160Hz. No wonder this 17" monitor (15.7" diagonal viewable area) keeps on winning awards, generation ... after ... generation!

# See. ViewSoni The Di

# nd Hear.



With an eye and ear towards the future, ViewSonic is expanding into the world of multimedia – with our new **PerfectSound**\*\*



Model VS127 speakers. These amplified, magnetically sbielded speakers are designed to be attached to the monitor or stand alone. In fact, when attached to our monitor they blend in so well they appear to be built-in. And they utilize state-of-the-art wave guide technology combined with a bass enhancing super woofer. These speakers pump out high fidelity sound with such power and clarity that you'll find it hard to believe you're listening to a compact 14 watt system. PerfectSound™ speakers offer advanced audio technology combined with an ergonomic, space saving design — each speaker is only 2.4" wide! Controls include bass, treble, balance and master volume.

Sounds so vibrant and realistic, you'll swear you're sitting in front of an orchestra — not your computer!

The ViewSonic 17 is MPR-II low radiation and EPA Energy Star™ compliant.

The first of the multimedia product line from ViewSonic!

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# **Easy Writers**

#### SYNOPSIS

NO SIN IN SYNONYMS:

Who clears out jargon best? 152

COMPOSITION 101: No grammar skills necessary. 153

ON THE FONT LINES:

Matching files' styles can be tricky. 154

FILL YOUR BOILERPLATES: Reform the way you build forms. 155

SWITCH HITTERS:

Document conversion steps up to bat. 158

USABILITY WINNERS: Who's most productive? 160

FINAL ANALYSIS: How other add-on features stack up. 162 he pressure's on. You're writing a report you want to be so compelling that your boss does cartwheels. Fortunately, you're using the latest whiz-bang version of your favorite Windows word processor, and it has everything but the kitchen sink. Unfortunately, sometimes you need the kitchen sink for that extra oomph. Where do

you turn? The growing world of accessories offers tools designed to improve upon features Windows word processors already have or add new features they don't.

How helpful are these add-on tools? They tend to be relatively inexpensive, with street prices ranging from \$35 to \$100. But do they really enhance productivity and usability? And by how much?

To find out, we ran five accessories through PC Computing's Usability Labs. We selected ones that add features to traditional business tasks and work with both Microsoft Word and Novell's WordPerfect: Microsoft Bookshelf 1994 to clarify word choice, Novell's Grammatik 6.0 to check grammar, 1862ware's Fort Works to match foots, Capsoft's HotDoes to create templates, and DataViz's Conversions Plus to convert document formats. (Other notable utilities, such as Alki Software's Master Word and Usability Sciences' QuickCards, work only with one word processor.) We gave our tresters a series of tasks to perform using these tools,

we gave out testers as mes or tasks with their word processors.

Our recommendation: Before you buy any accessory, be careful to assess what the new tool offers. If properly chosen, the right unlivers and the processors are the new tool offers. If properly chosen, the right unlivers are the property chosen, the right unlivers are the property of the strongest features; in our scenarios, many of the utilities we tested were more likely to bust productivity than boost it.

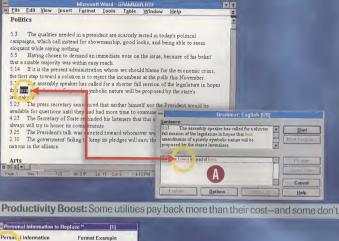
BY GORDON MEYER

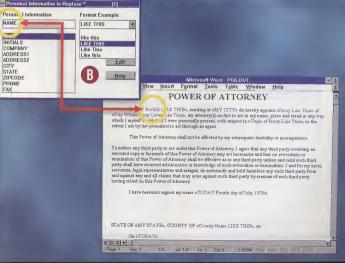
GRAMMAR: It's

usually nobody's favorite subject, but in our tests users liked the way Novell's Grammatik helped them figure out what was wrong with sentences. Neither of the word processors were helpful with hints.

B TEMPLATES: When they were asked to build a sample power-ofattorney template, our

attorney temphate, our usability testers raved about the way Capsoft's HotDocs integrated into their word processors. Alone, the word processors were greeted with furrowed brows and frustrated growls.





# No Sin in **Synonyms**

Your CEO has decided that a major section of the company's annual report has too much jargon. To translate it into plain English, you're going to have to employ your trusty thesaurus. But which one? The one built into your word processor, the dog-eared copy you used in college, or something else?

While some of our testers found the thesaurus in Microsoft Bookshelf 1994 (Roget's Thesaurus) helpful, most—especially the WordPerfect users—preferred the ones already built into their word processors.

To add something from its thessurus to your current document, Bookshelf uses copy-and-paste procedure to insert new material. Many of our testers found this operation to be cumbersome and noted the need for smoother integration. And although Bookshelf can paste information directly into a Word document, bypassing the need to copy to the clipboard first,

few of our testers discovered this feature on their own.

As a result, most people required more time to reword a document with Bookshelf than without it, and because of the awkward integration, the thesaurus proved to be more hassle than help for our testers from a usability standpoint.

Microsoft Bookshelf 1994 / Microsoft / (206) 882-8080 / \$70 est. street price / Reader-Service No. 691

#### SUMMARY

	Bookshelf	Word Solo	WordPerfect Solo
Satisfaction	Access is easy, but retyping is a pain.	Suggestions were usually acceptable.	Easy to improve readability.
Productivity	Better integration is necessary.	Loved that Shift-F7 shortcut.	Work went faster than with Bookshelf.
Help System	So simple that no one needed help.	Users found help wasn't necessary.	Good help provided.
Summary	***%	****	****

\*\*\*\*\*Fxcellent \*\*\*\* Good \*\*\* Acceptable \*\* Poor \* Unacceptable

PCC

USABILITY

Tested

### In Search of Clarity

Too much of a good thing can be as bad as too little. Some of our users were put off by the multitude of synonyms in Microsoft Bookshelf 1994's thesaurus and preferred more likely, if limited, choices.

Thesaurus
Table Of Centents
To see an anale, type a word.
The see anale

Bookshelf: Our testers were confounded by the complex process of getting liphiliphied words from Bookshelf's thesaurus back into their documents. They felt that this should be possible with a quick double-click of the mouse. Although there is a simple paste procedure for inserting words from the thesaurus, it was hard for our testers to find it. Overall, they wished for better integration with the word processors, especially Microsoft Wort.



WordPerfect: It can't match the correct participial form of the word you've selected.



Word: Our testers liked the range of synonym choices that Word offered. The Script
How We Tested
Word Clarification
We asked our usability
testers to take a section
of a technology company's
annual report and
translate the jargon into

of a technology company's annual report and translate the jargon into more readable English first using Word or WordPerfect (depending on what they typically used), then using Bookshelf.

Lab Notes What Our Testers Said about Clarifying Words

"The Shift-F7 keystroke [in Word] made each word selection very quick to do—faster than using the mouse."

BIOTECHNOLOGY

"Better integration is required—a word highlighted in Word or copied to the clipboard is not utilized by Bookshelf."

NETWORK ENGINEER



#### Don't Be Passive about This

It not only saved time over the grammar checkers in their word processors, but our testers also found Novell's Grammatik 6.0 easy to use and clear in explaining its suggested changes.



Grammatik: Our testers liked the way they could start up Grammatik, import files to be checked, and save them as word processing documents when they were done. They were especially pleased by Grammatik's straightforward interface, more complete explanations of grammatical errors, and suggested edits. Even those few whose tasks took longer with Grammatik praised it.

100				English) - n	
Check	Preterene	es	YICW	Dictionarie	s Sta
Rep	acements:	Pe	sides	8	
		4			
		ш			_
New	Sentence:	3.2	5 The 5	contingts back	ANS DIN
New		bow	rard who	CHARL MAR DO	esent.
New		bow	rard who	reiner reas po	esent.

**WordPerfect:** Sometimes the integrated Grammatik checker missed errors.

Santence	
neighbore, our i two cerdenel por	the first year that he and I were convected one turned frequently on the side of poetry, the power of exching the reader by a fachiful atherence to the
Suppositionic .	
Sentence was too	long to process for grammatical structure

Word: It was flummoxed by long sentences, even when they were correct.

#### The Script How We Tested Grammar Checking

We asked our usability testers to correct the grammar of a section of the Graduate Management Admissions Test (GMAT), first using the grammar checker in Word or WordPerfect (depending on what they typically used), then using Grammatik.

#### Lab Notes What Our Testers Said about Grammar Checking

"Changing the rules to reflect technical writing would be a big help."

COMPUTER

CONSULTANT

"Using Grammatik is a good rule for initial checking, but I would not trust it for a finished document." NETWORK ENGINEER

# **Memories** of Composition 101

"Proof this," comes the request from the legal department. The entire document must not only be precisely worded but grammatically perfect as well.

While our testers were reasonably satisfied with the grammar checkers built into their respective word concessors, there was a definite preference for proofing the test document with Novell's Grammatik 6.0.

When it came to what Word and WordPerfect and on their own (the latter incorporating an earlier version of Grammatik), many of our testers complained about the lack of suitable explanations for errors. Several Word users bemoaned its limited nature, and testers from both groups complained about the way in which the built-in grammar checkens estemed to be peroccupied with verbs in the passive tense (that is, sentences using some conjugated form of the verb is). The stylistic choices made by the built-in checkers were yet another bone of contention. Complained one of our testers about

the suggestions made, "These were not my changes!" The majority of both the Word and WordPerfect users saved time using Grammatik. Even those testers whose time savings were negligible praised Grammatik's ease of use and customizable proofing criteria. And since Grammatik is published by Novell, WordPerfect users can easily integrate a stand-alone version of it into their software.

Grammatik 6.0 / Novell / (801) 225-5000 / \$35 est. street price / Reader Service No. 692

#### SUMMARY

	Grammatik	Word Solo	WordPerfect Solo
Satisfaction	Good for first drafts, not final versions.	Testers found it limited.	Mixed feelings about its usefulness.
Productivity	More features than built-in checkers.	Effective at rooting out passive tense.	Changes were OK, not brilliant.
Help System	Half the time, help didn't help.	Half the time, help didn't help.	Help answered all queries.
Summary	****	****	****

\*\*\*\*\*Excellent \*\*\*\*Good \*\*\* Acceptable \*\*Poor \* Unacceptable

# On the **Font** Lines

Your boss wants your report to look like the hard copy of a similar document the Kalamazoo office faxed him. But the Kalamazoo office was a separate company until last year's merger, and they're using fonts your system never had. You're going to have to come up with reasonable substitutes.

Matching fonts manually means looking at a hard copy of the original document and searching through installed fonts for a sufficiently close visual match. For our testers, this was a trial-and-error procedure complicated by their not being able to find the names of the original fonts. Within the sample document they used, many of the fonts were available under different names, so the more familiar a tester was with different fonts, the easier the task. Most of our testers required the same amount of time (or more) to match fonts using Else-Ware's Font Works as they did with the word processes, but they were no more satisfied with the results.

When you bring up a document and don't have a

copy of the font used to create it. Windows substitutes Arial or Times New Roman. Font Works takes over this function, substituting a font on your system or creating one with a similar appearance from its database. By switching to the Font Works control papel, you can see the missing font and the substitute. Not completely satisfied with the automatic selection, several testers reverted back to a manual search.

Font Works / ElseWare / (206) 448-9600 / \$80 est. street price / Reader Service No. 693

SU	BALL	W E	18	v	

	Font Works	Word Solo	WordPerfect Solo
Satisfaction	Harder to use than the word processors.	Font matching needs to be easier.	Font matching needs to be easier.
Productivity	Lots of fonts to choose from,	End results were good.	End results were good.
Help System	Of 12 testers, only one needed help.	All testers found help unnecessary.	None of the testers accessed help.
Summary	***	****	****

\*\*\*\*\*Excellent \*\*\*\*Good \*\*\* Acceptable \*\*Poor \* Unacceptable

# USABILITY

#### Make It Look Like That

After manually searching between printouts and their onscreen choices to find the best match, testers were dissatisfied with both their word processors and Font Works—but using the latter took longer.



Font Works: After it automatically replaces fonts in a document, Font Works brings up an explanation of which fonts were changed. Making fonts match closely, however, is a time-consuming, unsatisfying process. Overall, Font Works worked best When it didn't have to contend with decorative fonts.



Word: Highlight a phrase in the text and try out a font in the Preview window.



WordPerfect: Font preview samples don't match the text you want to compare.

## The Script How We Tested

We asked our usability testers to take a document we'd created with a multitude of fonts and substitute the fonts on our test system, first using the font substitution features in Word or WordPerfect (depending on what they typically used), then using Font Works.

#### Lab Notes What Our Testers Said about Substituting Fonts

"If you don't have many fonts on your machine, you will not get good matches." BIOTECHNOLOGY WRITER

"The fonts were not that easy to match up because you didn't know what font was used on the original."

TECHNICAL SUPPORT ENGINEER



#### Why Reinvent the Wheel?

For our testers, building a boilerplate with fields to be filled in was slightly less painful than root canal work. When they switched to Capsoft's HotDocs, the task went as much as 25 percent faster.

Text Variable to Replace "			
Variable Name	Format Example		
Name	Like This		
Answer Control			
Prompt Enter Client's Na			
Pattern	A A		

HotDocs: When you install the HotDocs template builder, it adds icons to your toolbar. Clicking on these brings up dialog boxes with variables and conditions to choose from. When other users click on blank areas in the template, it prompts them for the proper insertions. The program even gives them options they hadn't considered, such as adding help. And they can program HotDocs to insert their name, title, address, and other personal data automatically.

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WordPerfect: The idea of "associating triggers" for templates left users frustrated and mystified.

	Text Form Frold Options
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	± Teat1

Word: Dealing with form field options was just as confusing as using triggers.

# The Script How We Tested Template Creation We asked our usability testers to create a templa

We asked our usability testers to create a template for both a power-of-attorney document and a fax cover sheet, first using the template builders in Word or WordPerfect (depending on what they typically used), then using HotDocs.

# Lab Notes What Our Testers Said about Creating Templates "I found this task very

frustrating. I could not figure out how to set up the fields."

ADMINISTRATIVE ASSISTANT

"HotDocs was my favorite product to test. It was well integrated with WordPerfect and made it a snap to create automated document templates."

TECHNICAL SUPPORT ENGINEER

# Fill Your **Boilerplates**

"Stop spending money on printing forms," insists the head of your accounting department. The alternative? Harness the power in your computer.

We challenged our testers to come up with templates for a power-of-attorney form and a fax cover sheet, and as a result, we found one tool—Capsoft's HotDocs—that made a significant difference to them.

Using only their word processors, our testers were routinely frustrated by the precived complexity of the task and the lack of adequate documentation (users accessed help more for this task than any other). Given the need to learn complex maror languages like Word-Basic in order to automate templates like the ones we asked for, this was hardly surprising.

In the process of doing the power-of-attorney boilerplate, our testers often found themselves lost and frustrated with inadequate documentation in the manuals and the online help. Some couldn't complete the task within the time allotted for this test.

With HotDocs, our testers no longer needed to learn about fields and macro languages. They liked the way HotDocs integrated itself into their word processors and walked them through the process. As a result, it won almost unanimous praise.

HotDocs / Capsoft / (801) 763-3900 / \$60 est, street price / Reader Service No. 694

#### SUMMARY

	HotDocs	Word Solo	WordPerfect Solo
Satisfaction	Well integrated and easy to work with.	Difficult and dissatisfying.	Been there, done that, hated it.
Productivity	The winner— everyone loved it.	Some testers couldn't finish the task.	Thumbs down.
Help System	Help was great.	Template help aided just half of the time.	Template help needs work
Summary	ak ak ak ak	***	**

\*\*\*\*\*Excellent \*\*\*\*Good \*\*\*Acceptable \*\*Poor \*Unacceptable

155

# THE NEW COMPAQ LTE ELITE. ALL THE FEATURES YOU ASKED FOR. FROM THE DIFFICULT~

At Compaq, we always try to give you the notebook features you've asked for. Even if your requests do seem to stretch the laws of physics. Case in point: the Compaq LTE Elite.

To begin with, we actually found a way to get rid of that bulky AC adapter that you've always had to carry. We built the LTE Elite to have its own built-in AC adapter, so when you travel, all you need is a thin power cord.

At your request, we also designed it to be easily expanded. The LTE Elite gives you a choice of fast 486 processors (up to 75MHz) and a removable hard disk. It also has PCMCIA slots that let you use over 140 Compaq-tested cards. And almost every key component is upgradeable: the memory, the display and the processor itself.

We even designed the LTE Elite to make things easier in the office – with the SmartStation and MiniStation expansion bases. Both of these options feature built-in networking' and SCSI-2 capabilities for an instant desktop configuration—with ports for your full-sized monitor and keyboard. The SmartStation also adds expansion slots and bays,

a spare battery charger and motorized docking
Of course, the LTE Elite also provides

the peace of mind that comes with the

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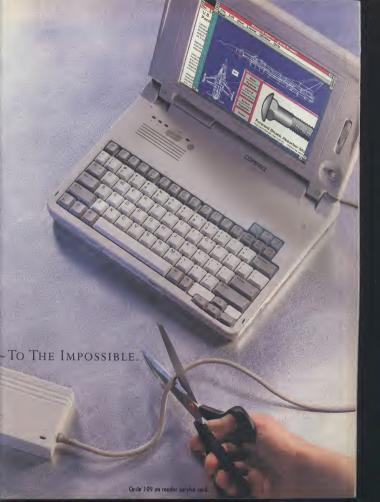
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reseller. Or, if
you would prefer receiving specifications immediately via fax, just give us a call at
1-800-345-1518, choose the
PaqFax option
and select document #4023.

With the LTE Elite, you'll find it's hard to make a wrong decision. If not impossible.

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#### Switch **Hitters** At the Plate

What happens when the die-hard user of Word on a Macintosh shares a project with a die-hard user of WordDerfect on a PCS Sure, both their word processors have conversion filters, but would they be better off with an accessory like DataViz's Conversions Plus? According to our testers, not entirely.

Both of our groups were asked to convert files created on a Macintosh into a format they could use. In addition, the Word group was given a WordPerfect 5.1 file to convert and the WordPerfect group a Word 2.0 file. In all cases, our testers found the conversion procedure itself fairly easy and straightforward. But to get a document to look exactly like the original, they had to spend a lot of time cleaning it up.

When it came to Conversions Plus, however, our testers found no real advantage in using it over what they already had. Incorrect line spacing and borders plagued both groups, and the Windows to-Windows conversions took more time to complete than they had with the word processors alone (sometimes twice as long). Only the WordPerfect users saved any time with Conversions Plus, and they were no more satisfied with their results than with what they got using WordPerfect's own conversion filter.

Conversions Plus / DataViz / (203) 268-0030 / \$100 est. street price / Reader Service No. 695

SUMMA	RY		
	Conversions Plus	Word Solo	WordPerfect Solo
Satisfaction	A lot of reformatting needed.	Nothing to it.	Simple.
Productivity	Too time- consuming to help.	Why isn't everything this easy?	Some cleanup necessary.
Help System	One bright spot—no one needed help.	No question was left unanswered.	Conversion help needs work.
Summary	***12	****	***

\*\*\*\*\*Excellent \*\*\*\*Good \*\*\* Acceptable \*\*Poor \* Unacceptable



### **Conversion Confusion**

Even after our testers converted documents from Macintosh to Windows, there was a lot of cleanup to be done. In almost every case, though, it was faster with the word processors than with Conversions Plus.



Conversions Plus: Once Conversions Plus finished with a document, we asked testers to recreate the way the document looked in its original format. They had to rearrange graphics far too much for their liking. For example, text that had been centered suddenly appeared flush with the left column.



Word: Some testers said that the graphics looked better after Word had converted them.

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WordPerfect: The only complaint was that bold lines become double lines.

# The Script How We Tested Document Conversion

We asked our testers to take documents created on a Macintosh and convert them to a Windows document, first using the conversion features in Word or WordPerfect (depending on what they typically used), then using Conversions Plus. We also asked them to convert documents created in one word processor into files for the other.

#### Lab Notes What Testers Said about Converting Documents

"Conversion was easy, formatting was not." ADMINISTRATIVE

"There were missing lines and additional vertical lines, but the text was very similar."

TECHNICAL SUPPORT ENGINEER

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## The Most Usable Accessories

Why buy an extra product that does what you can already do with your word processor? Because if you do that task frequently, it's worth the additional cost to get a special tool that makes you significantly more productive.

Looking at usability and productivity, however, the accessories we tested were all too often disappointing. Only two—Capsoft's HotDocs template builder and Novell's

| Company: — Company:

USABILITY Approved

HotDocs: The difference between building document templates with HotDocs and building them with the word processors was night and day. Our testers loved it. \*\*\*\* Grammatik 6.0 grammar checker—came close to exciting our testers. The rest were met with indifferent shrugs.

Most of the products we tested didn't provide the productivity gains we had hoped for. Even though they're relatively inexpensive—all have street prices of \$100 or less—you'll incur extra costs for installation and support of software that may merely duplicate what you already have.





Grammatik: Unlike the other grammar checkers, Grammatik always suggested a change when it found errors. Also, testers could base changes on different dictionaries. \*\*\*\*

SAHSFACTION: This was a mixed bag. Reactions ranged from bigh praise to indifference, mostly the latter. But whatever the advantages, they often didn't justify the bassle.

PRODUCTIVITY: Tasks done with the utilities often took the same amount of time or more than those done with just the word processors. Only two add-ons improved productivity.

HELP SYSTEM: Testers rarely if ever accessed help in either the word processors or the add-ons. When they did, it was a hit-andmiss affair, with testers getting answers

about half the time.

SUMMARY: If it ain't broke, don't fix it. If your word processor already performs well, then add-ons may provide only limited value. In fact, they may prove to be more trouble than belp.

#### Lab Notes: What Our Testers Said about Text Tools

#### Microsoft Word

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"The grammar checker was not helpful at all. It kept telling me that the sentences were passive, but it didn't understand the sentences well enough to be able to rewrite them." DATABASE ADMINISTRATOR

#### Novell WordPerfect

"It didn't catch some obvious errors, so it didn't inspire confidence. It's easy to use but doesn't catch as many [grammatical errors] as the others do."

COMPUTER CONSULTANT

File Edit View Dictionaries Statistics |

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Replacements: had

#### Capsoft HotDocs



"I like that. You can have HotDocs fill out today's date from the list of variables. This looks like it would make [building templates] go faster"

BIOTECHNOLOGY WRITER

#### The Script

For every usability-tested product we designed a script that consists of a set of common business tasks. We report test results in three key areas: user satisfaction. productivity, and the help system. The satisfaction score reflects users' preferences on a scale of one to five (five is best). The productivity score reflects the nercentage of tasks completed, and the help score reflects the nercentage of documentation and online help that actually assisted the testers

To evaluate add-on products for word processors, we brought users of varying backgrounds and levels of experience into our Usability Labs, Of the 12 participants, 6 were experienced Word users and 6 were experienced WordPerfect users. We chose add-on products that not only work with both applications but also correspond to features found in the applications themselves.

How We Tested

Each tester was given the same assignment, which took about six hours to complete.

First they had to complete a task using a feature within the word processing application. Then they had to complete the same task using the add-on software. There were a total of five tasks in the assignment, all typical for word processor users in business today.

We urged our testers to "think out loud." Some of their "thoughts" appear throughout this article.

#### SCORECARD NOT ALL ADD-ON TOOLS ARE WORTH IT Novell Factor Utilities Microsoft Word WordPerfect 1. Clarifying Words \*\*\* Deciding \*\*\*\* Testers liked \*\*\*\* Finding the Weighting Factor: 20% between Bookshelf's substitution shortcuts right words was a breeze. choices took time 2. Checking Grammar \*\*\*\* Depend on \*\*\*\* It'll out action \*\*\*\* ||sprs came Weighting Factor: 20% Grammatik for checking into those passive away satisfied. first-draft efforts sentence structures. 3. Substituting Fonts \*\*\* Font Works is \*\*\* Fnd results \*\*\*\* Cond and Weighting Factor: 20% not at its hest with were good, but they could results, but they were a decorative fonts. be easier to get bit difficult to achieve. \*\*\*\* HotDocs is 4. Creating Templates \*\*\* Testers found it \*\* Testers looking for Weighting Factor: 20% a favorite among difficult: some of them help didn't find it. add-on tools didn't finish. 5. Converting Documents \*\*\* Reformatting \*\*\*\* If only metric \*\*\*\* Good overall. Weighting Factor: 20% took up a lot of time with conversions were this but some cleanup of Conversions Plus. easy to handle. graphics needed. \*\*\* \*\*\* \*\*\*5 Verdict 100% Worth it only if they beat Our testers preferred Our testers were happy the word processors. Word to the add-ons. with WordPerfect. \*\*\*\*\* Excellent \*\*\* Acceptable \*\*Poor\* Unacceptable

NOTE, RATINGS APPLY ONLY TO THE CAPABILITIES TESTED IN OUR SCENARIOS

# **Necessary Tools**

In this roundup, we were testing the add-ons for very specific tasks, which in most cases reflect only a fraction of what the programs can do. For instance, while some testers deemed Bookshelf's thessurus cumbersome, other liked its extensive listings. In addition to Roger's Thessarrus, it includes The Concise Columbia Encyclopedia, The Concise Columbia Dictionary of Quotations, and The Hammond Intermediate World Atlas.

Our testers also liked Grammatik's easy interface, and they were impressed by its more thorough explanations of grammatical errors and the choices suggested to correct those errors. As for integration, even though it's a stand-alone program, Grammatik offers a series of macros that enables users to access it from within Wordt. WordPerfect, and Lotus's Ami Pro.

When it came to helping our testers create sophisticated automated templates, HotDocs proved to be invaluable. Word and WordPerfect users alike were nearly unanimous in their praise, especially since the alternative to HotDocs involved learning complex macro languages. Since we tested it, Capsoft has shipped Version 2 of the program with improved scripting capabilities and the power to nest multiple forms within the same template.

Those users who liked Font Works cited its automatic selection and on-the-fly creation of font substitutes without the need for any user input. In addition, for people with limited hard-drive space, Font Works' capability to squeeze its library of 150 fonts into less than 2MB of space is a real blessing.

While Conversions Plus's file translation procedure tiself was simple, our testers found that the more involved the layout, the more cleanup they had to do afterwards, especially if borders and graphics were involved. Although our specific tests didn't cover this capability, Conversions Plus can also read, write to, and format high-density Macintosh diskettes from your PC. In addition to word processing formats, it can exchange data between hundreds of application formars as well.

GORDON MEYER is a consultant specializing in personal productivity applications.

Choose the kind of task you do most often.	How often do you do this task?	3 What feature would you use?	The best boost for productivity is
	Frequently Infrequently	Grammar Checker	Novell Grammatik
Clarifying Text		Thesaurus	Microsoft Bookshelf
& Grammar		Grammar Checker	Novell Grammatik
		Thesaurus	Your Word Processor
		Text Conversion	Conversions Plus
Converting	Frequently	Font Conversion	ElseWare Font Works
Text & Fonts	lufus assentla	Text Conversion	Your Word Processor
	Infrequently	Font Conversion	Your Word Processor
	Frequently	Complex Templates	Capsoft HotDocs
Creating		Simple Templates	Capsoft HotDocs
Templates	Infrequently	Complex Templates	Capsoft HotDocs
		Simple Templates	Capsoft HotDocs

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Acceleration:	Current		Cursor Keys:	
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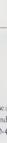
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# PCs at the Crossroads

#### SYNOPSIS

MICROPROCESSORS: A betting RISC. 168

INTEROPERABILITY: Can OpenDoc overtake OLE 2.0? 172

GRAPHICS BUSES: Catch the right bus. 174

MAIL PROTOCOLS: The proper address. 176

STORAGE INTERFACES: Know I/O. 180

COMMUNICATIONS: The data must go through. 182

#### COMPRESSION:

Prognosis for video playback. 184

WIDE-AREA NETWORKING: Fiber diet recommended, 186

FINAL ANALYSIS: Winners and losers. 188

It used to be said that no one ever got fired for buying from IBM—unless it was 1987 and they bought PS/2s equipped with the Micro Channel bus. Pick a year, pick a technology, and you'll find we all have a Betamax in our past. Back in 1988, 3Com was the leading manufacturer of Ethernet adapters, so who better to build

a bang-up network operating system? But who remembers 3-Open? Back in 1989, Steve Jobs (one of the brains behind Apple) presented a sleek black box—the Next workstation—as his vision of computing's future. It quickly became a sleek black hole. Today, folks use 'em as doorstops. Fley, remember pen computers'

How do you avoid backing the wrong technology? At any given moment, there are multiple battler raging over the components of your PC, both hardware and software. Pick a three-letter acronym and you'll find that there's a competing technology. Both technologies will be touting their adherence to standards and a roster of industry heavyweights backing that vision. It's a minefield out there.

To get a fix on the future of 16 competing technologies, we surveyed more than 100 CEOs and other high-level industry executives. We talked to analysts and vendors (both biased and impartial) to find the pros and cons of each technology. Think of this article as your minesweeper. We ve put these technologies side by side and given you our verdict, the industry buzz, the time to expect closure, and other opinions. Sometimes the answers are not so cut-and-d-fried; and even our crystal ball clouds up. If that's the case, we'll tell you why.

With this story, we're inaugurating a regular feature called Crossroads, because when you come to one, it's time to make a decision. Here and in monthly future issues, we'll help you avoid the queasy feeling that comes with the realization that you've just bought a \$4,000 doorstop.

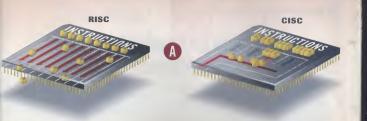
BY HOWARD BALDWIN AND LIESL LA GRANGE

PROCESSORS:
RISC processing

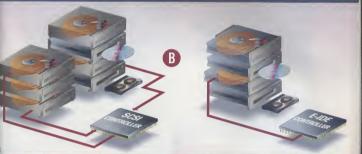
ISC processing is fast, thanks to its instructions moving in parallel, but it's not fast enough to catch up to CISC processors' installed base.

B STORAGE: The newly developed Enhanced IDE adds support for internal CD-ROM and tape drives, but can't handle as many external storage devices as the SCSI method can.

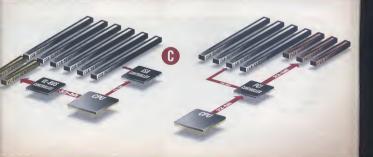
GRAPHICS:
Throughput for
peripherals may be faster
with the VL-Bus, but
PCI's so closely engaged
with Pentium processors,
they've got a long, bright
future together.



Fireballs: Invest your money in technologies that will go the distance.



Firewalls: Protect yourself from obsolescence and plan for the future.



## **Speed Thrills but Volume Kills**



CISC

Each instruction is the same byte size. That's why RISC runs faster than CISC, especially with graphics-the processor doesn't have to break down the data into more digestible chunks.

Each instruction contains multiple commands and comes in different sizes. Breaking these down into easily processed pieces takes more time on a CISC chip than on a RISC chip.





#### Pros

- Graphically intensive applications run faster on RISC.
- . Its simpler design allows applications to switch tasks more easily, a boon with a multithreaded operating system like Windows NT or OS/2.

. Volume sales of RISC machines are yet to materialize, so developers are slow to write applications for them.

#### Pros

- An installed base of 50 million PCs (30 million running) Windows)-need we say more?
- . Despite some compatibility problems, the Pentium has solidified Intel's hold on the CISC market.

#### Cons

· As applications become more multimedia-intensive, users will investigate RISC's advantages.

#### Verdict



processors-with no

slowdown in sight.

CISC: The numbers story. Just compare the installed bases: For every RISC processor ever built. there are 10 CISC

The Buzz



Our executives went 50-50 on this. As applications' graphics capabilities increase and operating systems become multithreaded, you'll need a RISC processor. But 50 million of anything never disappears overnight.

#### Timetable



say half the desktops will go RISC in three years, but Intel rules. It'll keen adding RISC-like capabilities to its processors, and PC desktops will be RISC when Intel says they're RISC.

Slow and Steady Wins:

Some folks

#### Oninion

Microsoft retains [Windows 95] on Intel, RISC will never take over

> LINLEY GWENNAP, EDITOR-IN-CHIEF, MICROPROCESSOR

"They'll merge into one technology.

> WALT THIRION, PRESIDENT AND CEO. THOMAS-CONRAD

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## **Applications So Happy Together**

**OPENDOC** 

VS.

**OLE 2.0** 

You can create custom applications with OpenDoc by embedding and linking real-time objects, from spreadsheets and graphs to scrolling stock tickers, which can be edited in place. Although it also enables linking and embedding of Windows objects in documents, they are only bitmapped images of objects that must be launched in order to be edited in place.





#### Pros

- It's designed to be cross-platform so Macintosh and PC users can work on the same documents.
- OpenDoc apps can display nonrectangular shapes, unlike OLE 2.0 apps, which would display a pie chart within a box.

#### Cons

 It won't be shipping to developers until next summer, so it may be a while before we see OpenDoc apps.

#### Pros

- Currently, 250 vendors implement OLE 2.0 technology in more than 450 applications.
- It will be part and parcel of Windows 95.

#### Cons

- It's very Windows-centric—it's also available on the Macintosh, but with limited vendor support.
- Its huge CPU overhead slows performance.

#### Invillat



OLE 2.0: Microsoft's technology has the

edge in that it's already shipping. But we think OLE 2.0 and OpenDoc can complement each other and bring true interoperability to applications, making them document-centric.

#### The Buzz



Out in Front: Of the executives surveyed,

79 percent think that although OpenDoc may be a superior technology, it will be too hard to fight Microsoft. In the end, OpenDoc just may ship too late, and Microsoft's power will keep OLE 2.0 in the No. 1 soot.

#### Timetable

Tech Support:
Unless
OpenDoc

support from mainstream software vendors, it will float belly-up. And, according to Dataquest, once the first wave of Windows 95 apps ships, OpenDoc will be trying to stop a leaking dam.

#### Opinion

"OpenDoc's just too late. As slow and ugly as OLE 2.0 is, it's an

answer that works, today. Given that OpenDoc is a superset of OLE 2.0, both will survive a while, but I suspect OLE is the longterm survivor."

JIM SEYMOUR,



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The Intel PCI bus and controller are independent of the CPU. This arrangement offloads all peripheral processing of multimedia graphics with actual throughput of 76MBps.





You'll find it in 10 million 486-based PCs.

Dell are already phasing out support.

- Initial compatibility problems have been eradicated.
- . Its higher pin count and larger size diminishes its price
- advantage over PCI. . Some major PC manufacturers like Gateway 2000 and

- . A whopping 90 percent of the Pentiums being built use
- the PCI bus to speed up peripherals. · It's cross-platform, which means lower manufacturing
  - and development costs.
- . While PCI's maximum throughput matches VL-Bus, its actual throughput is about 25 percent lower.



PCI: Intel crosses the line, driving the bus of

the future. It's powered by Intel's bucks and crossplatform capability. You'll even see both Digital Equipment Corp. Alpha workstations and Apple Power Macintoshes equipped with PCI slots.

#### The Buzz



The PCIs Have It: our survey.

80 percent of executives believe that Pentium and PCI go together like two p's in a pod. As Intel pushes Pentium prices down, PCI goes along for the ride. VL-Bus eventually joins EISA in the aftermarket niche.

#### Timetable

June Swoon: In five months, look

for half the PCs being sold to have PCI buses built in. Valueadded resellers will stick to the low-cost VL-Bus for easy integration and low maintenance. Over time, though, VL-Bus slips into the sunset.

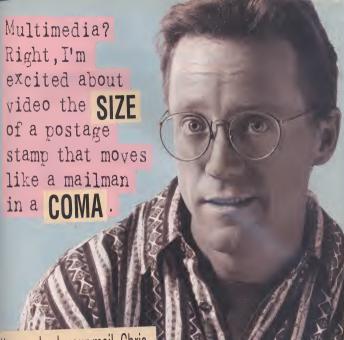
## Opinion

VL-Bus.

TIM CROWN, PRESIDENT,

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> RON McCABE CEO. MIRALINK



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## Passing Notes around the Network

### MAPI



VIIV

Microsoft Windows' Mail Application Program Interface consists of a set of mail system calls to send, address, and receive messages, integrating applications with electronic messaging systems.

Lotus Development's Vendor Independent Messaging Interface is a common mail protocol which also allows for mail-enabled applications on systems running Windows, OS/2, and Macintosh.





### Pros

· MAPI is designed into Windows as a messaging subsystem, so you can send a message to users in different mail groups without going through a gateway.

 As a Windows-only API, it isn't cross-platform. Microsoft controls the API, so no other vendors have any input in defining the standard.

### Pros

- . VIM is a cross-platform protocol and interface that supports Windows, OS/2, DOS, and Macintosh.
- . Eight major vendors make up the VIM consortium.

- · To send mail between different messaging systems, you have to go through gateways, which slows down traffic.
- . Lotus now encourages vendors to use the CMC API.

### The Buzz

### Timetable

### Opinion



Mont Point: The MAPL vs VIM debate is irrelevant.

CMC (Common Messaging Calls) will be the eventual end to it all. Soon all developers will be going to CMC and they'll only have to code to one API for cross-platform support.

Monster MAPI: A full 75 percent

participated in our survey thought Microsoft's MAPI standard would prevail in the API wars. Now that it's part of Windows 95, most Windows developers will use MAPI alone.

**Kiss Those API Blues** Good-bye: Microsoft and

Lotus are due to release their new back-end engines next summer. If CMC is incorporated into these new engines, the third-party vendors' headache of coding to two different APIs vanishes.

"Messaging is controls the development

ALLEN WALKER,

VICE PRESIDENT.

"Gates always wins." MAURICE COX, PRESIDENT AND CEO.

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power problem, those who are going to, and
those who have protected themselves against
the inevitable surge, blackout or brownout
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alike agree that if your system demands
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According to a study by Bell Labs.

undervoltages represent the overwhelming majority of power problems likely to hit your computer. The question is not if a failure will occur, but when. Whether due to construction, wiring, weather, other office APC Voted most reliable by 3-to-1



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August 1993 APC Back UPS 12

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Don Trans knows first hand about Back-UPS reliability: "It engit to be against the law to hay a computer without an APC Back-UPS 250, I recently had a direct lightning bit right outside the house...my computer newer blinked. Each morning I get a surge down the line and both APC's hate it - they simultaneously 'holler' aclamp' shille my 'Nerad T' quietly sleeps in. Ver elegated that unit to non-critical household stuff like my VCR."



Andrew Warge, Manager at Buster Land Company, tred two other hundred brior Rec-Cuppany. The two other hundred brior Rec-UPS. "One lasted a few days, a second one went up in smole after 48 hours, a third lasted less than 24 hours! I then bought my Back-UPS for less than half of what I had paid for the others. We've purchased three more Back-UPS, and for the past 14 months they've been pust hommin' away on the same power line that was cating the other brands allow.



APC has won more awards for performance and reliability than all other UPS vendors combined...including five consecutive LAN Times Readers Choice awards... AWARD-WINNING FEATURES

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Don Truax knows first hard about Back-UPS reliability. "It copie to be against the law to buy a computer soldown an APC Back-UPS 250. I recently load a dreet lightning bit right outside the boxes...my computer news blinked. Each morning leaf a sarge dount he line and both APC's hate it - they simultaneously 'boller in clamp' while my 'Brand'T guistly sleeps in. I've relegated that unit to non-critical bousehold stuff like my VCR."



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ranty, Back-UPS are power protection you can purchase with confidence.





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# Heck, No-We Won't Go for Slow I/O

SCSI

VS

ENHANCED IDE

This mature I/O method combines stability and a data transfer rate of up to 40MBps with the ability to send commands to up to seven devices. including CD-ROM, tape, and hard drives.

At speeds up to 13MBps (twice the rate of IDE), this newly developed I/O method can talk to two (or four, with a second adapter) internal CD-ROM, tape, or hard drives.





- . SCSI has already gone through the compatibility questions Enhanced IDF is now encountering.
- · It can accommodate up to seven external storage devices of different types.

. It still requires installation of an adapter, costing around \$50 and sometimes causing configuration hassles.

### Pros

 With support from both disk drive and PC manufacturers. Enhanced IDE is the natural evolution for IDE, with controllers built in on motherboards.

- · Because it hasn't been codified by ANSI, it's currently only a de facto standard.
- Tape support won't be ready until at least this spring.



Peaceful Coexistence: Although some SCSI

vendors question Enhanced IDE's claims of compatibility, it's backed by creator Western Digital and four competitors. With the potential volume. compatibility issues will be ironed out quickly.

### The Buzz



Even Steven: Execs split their decision

right down the middle. will eventually take IDE's place on the desktop. while SCSI will continue to be the rule when it comes to servers and drives larger than 1GB.

### Timetable

Wait for It: If Enhanced IDE doesn't offer tane support

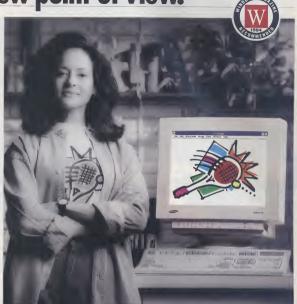
by the end of this year and multithreading capabilities by late in 1996, it's trouble as a SCSI alternative. However, if it's achieved IDE's volume, worry not.

### Opinion

'The market is more devices on your PC. SCSI does that today."

> ROB CSONGOR MARKETING MANAGER ADAPTEC MULTIMEDIA

Samsung A new point of view.



# SyncMaster 17GLs

It's about how you work... Attitude, Satisfaction, Pride. The 17-inch SyncMaster™ monitors reflect todov's changing lifestyles. Hossle-free, Value-oriented.

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obout safety and energy conservation, so they're standard on the whole series. Life should be as simple as possible, so we added

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Oot Pitch	.28	28	28	.26
Maximum Resolution	1024x788	1024×768	1280 x1024	1600x1280
flaximum Refresh Rate of Meximum Res (Hz)	78	76	60	60
MPR-II (Low Rackation)				
Power Management				
lat Square Screen				
On-Screen Programming				
Real Color Coetrol				
Namenty	2 Years	2 Years	2 Years	2 Years

innovotive new features like On-Screen Display and Real Color Control, and as you would expect, the Gl. Series comes with a two-year limited warranty.

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## The Spectrum of Wireless Choices

### PACKET RADIO



CDPD

Packet radio combines data transmission, paging, and in some cases, two-way radio between control centers. Data is stored there until your handset or pager is turned on.

The Cellular Digital Packet Data (CDPD) standard lets nomadic computer users send data over airwayes vacated by cellular voice conversations transmitting between cell sites at 19.2Kbps.



### Pros

- . You'll be able to get service both from the Baby Bells and from providers of cellular phone service.
- . Fconomically, its use will be subsidized by millions of folks using their cellular phones.

. It won't work with the analog cellular phone you already have-be prepared to buy a new handset.

- . There's a potential market of 16 million two-way radio users and 19 million pager users. Nextel, a leading radio service provider, needs \$2.5
- billion over the next five years to complete service nationwide, but already has \$2.1 billion in the bank.
- · Like CDPD, it requires the purchase of a new handset.



CDPD: This technology has two big technological

Baby Bells and cellular providers. It also supports TCP/IP's common internetworking protocol. so developers won't have to learn new APIs to extend applications to mobile users.

### The Buzz



Wireless Ways: percent of our executives voted for

CDPD as the technology to invest in for wireless digital data transmission. You can already buy CDPD devices from IBM. Motorola, and modem manufacturers Sierra Wireless and PCSI

### Timetable



Triple Ripple: The amount of data transmitted by

cellular airwaves will triple in four years, with lots of competition driving down transmission costs. Watch out if security and encryption problems haven't been dealt with.

### Opinion

the top-tier superuser who wants a pager and

telephone in one box, but there just aren't that many of them."

> DALE PFAU. TELECOMMUNICATIONS ANALYST, WEDBUSH MORGAN SECURITIES



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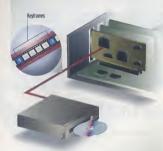
## The Video, the Sound, and the Fury

MPEG

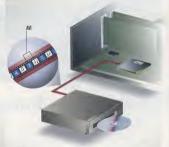


INDEO

Video is tightly compressed by recording reference frames and the changes between them. A dedicated chip or board handles the heavy processing required for MPEG decompression.



Indeo compresses AVI (audio-video interleaved) files, but they're still large enough to slow down the system bus and the CPU. Because it's software, it doesn't require any extra hardware like MPEG.



- . The tight compression rates and playback screen sizes are better than Indeo's.
- MPEG requires far less processor overhead, especially on low-powered systems.

 It requires lots of processing power (extra chip or add-in board) for decompression.

- . Windows 95 will have Indeo built in.
- . Every CD-ROM that supports Video for Windows also
- incorporates Indeo compression.

- . Compression causes loss of color fidelity and clarity.
- . Software-only decompression puts a toll on the CPU.
- . Compression ratio and playback not as good as MPEG.



MPEG: Eventually, MPEG will implement

software-only playback solutions too. Because Indeo is software-based, though, it will continue to get better. The playback systems-CD-ROM drives, PCs-will also improve along with compression techniques.

### The Buzz



Quality Now: MPEG was the hands-

compression choice of the executives polled. MPEG's superior quality factored heavily in their decisions. While Indeo's quality is improving, they don't think it will be a match for MPFG.

### Timetable



Faster, Faster: Given the juggernaut of processor

speed, someday everyone will have full-screen video and no one will care how it's done. The trend will be toward utilizing the horsepower of your computer rather than

adding an extra card.

### Opinion

algorithm and will have wide consumer support with

movie titles ' TODD GRESHAM, VICE PRESIDENT OF MASS

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### In Search of Better Bandwidth

### ISDN



### ATIM

With an integrated services digital network (ISDN) adapter, you can communicate at rates between 64Kbps and 128Kbps, using it for data or voice from remote sites.



Asynchronous Transfer Mode (ATM) technology uses fiber between buildings and twisted-pair wiring between local-area networks to create permanent point-to-point connections.



### Pros

- It runs on the twisted-pair telephone wire you already have installed for networking.
- Dial-up on demand is a convenient boon for branch offices and telecommuting.

### Cons

 You'll pay \$500 for the adapters and about \$35 per month for the service—if you can get it.

Banking

On ATM:

are still being developed.

are proprietary. Once it's

implemented, however, it

different data speeds, so

will be able to handle

you'll have a smooth

upgrade path.

many current ATM products

Because its standards

### Pros

- You can run other high-speed data networking services—frame relay, Switched Multimedia Data Services (SMDS)—over ATM using fiber or twisted-pair wiring.
- Cons
- The adapters cost about \$1,000.

 Interoperability and standards kinks still need to be worked out.

### Verdict

### The Buzz



Can I Put You on Hold? Two-thirds of the high-

tech executives went with ATM over ISDN. They felt ISDN was a good shortterm solution while ATM was the better choice for long-term wide-area networking needs.

### Timetable

### Four Years

After: ATM will become a universal connectivity standard for

connectivity standard for voice and data between desktops, LANs, and wide-area networks in four years. But watch out if the wrangling over LAN emulation and other standards continues.

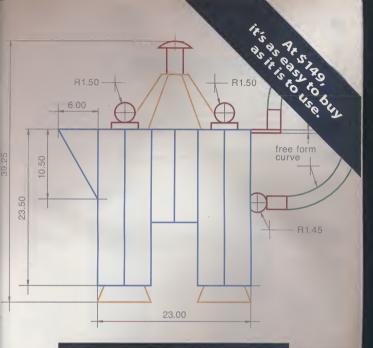
### Opinion

"Eventually, ATM is the technology to go with to solve wide-area

solve wide-area network problems. In the meantime, ISDN is available."

> VICE PRESIDENT OF MARKETING, DIAMOND MULTIMEDIA

### 186



# Twenty minutes ago this was a cocktail napkin.

AutoSketch' Release 2 for Windows. Now \$149. As quickly as you can sketch out an idea, AutoSketch software lets you turn it into a precise, technical drawing. Draw a floor plan and you know the square footage. Draw a pipe and you know the diameter. AutoSketch gives you tools and icons that increase the versatility of the Windows' interface, so you can draw

instinctively. Or enhance your drawings with TrueType" fonts and predrawn symbols, like doors and windows. By the way, the makers of AutoCAD software haven't just made AutoSketch the easiest design and drawing tool to use. They've also made it the easiest to get your hands on, by pricing it at

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## **B**attlefields of Yore . . .

When tales of technological warfare turn to the vanquished, the term Betamax always pops up. The technologically superior VCR died in the consumer market because Sony wouldn't license its technology; JVC and Matsushita, who developed VHS, did the opposite. But guess what? Betamax has thrived in professional television studios. Here's a look at the technobattles of the past—some of which may still be brewing.

### Hail the Conquering Heroes Remember the Vanquished

The Battle	The Outcome	Why One Was Bound to Fail	Quote of the Day	The Last Word
DOS vs. C/PM	Once Bill Gates took the Disk Operating System he'd licensed from a couple of friends and relicensed it to IBM, Gary Kilddil's Control Program for Microcomputers became a footnote.	Kildall was no businessman. When Digital Research finally created a 16-bit version of CP/M, it charged ten times as much for it as DOS cost.	"We wanted to use C/PM because 10,000 programs were available. If we'd used 16 bits, people would have said, 'Where the helf's the programs?" Andy Kay, founder of Kaypro, quoted in Silicon Jungle, 1985	If you can't beat 'em, join 'em. Kildall's company, Digital Research, went on to create DR DOS, a DOS clone that was sold to Novell in 1991.
Windows vs. OS/2	It took six years—until OS/2 2.1—to iron out the kinks. In the meantime, Windows (even with its own kinks) became the desktop standard.	Two words—Presentation Manager. Application development with OS/2's graphical user interface was a nightmare.	"DOS will remain the leading operating system for PCs until 1990, when OS/2 will rapidly become the leader." 1989 The Computer Industry Almanac	IBM hasn't given up: OS/2 Warp is preparing to go head- to-head with Windows 95. But the battle for the desktop is over, Windows won.
PC vs. Macintosh	Computer Intelligence InfoCorp estimates there are 50 million PCs in the world vs. 6 million Macintoshes.	Apple believed that businesses would pay more for its easy interface. The irony is, business folks needed it more than anyone, but wouldn't pay for it.	"Whatever the actual numbers turn out to be, the trend is clear corporate America is embracing the Mac with growing enthusiasm." PC Tech Journal, July 1988	No respectable graphics professional works without a Macintosh, just as no video professional works without a Betamax.
Graphical User Interface vs. Character-based System	Windows wasn't wholly reliable early on, but users loved switching between tasks and having options accessible from the menu. Now it's like an automatic teller machine—how'd we live without it?	Once you figured out how to use one Windows application, learning the next one was easier. And between a fast, ugly interface and a slow, pretty one, people will always choose pretty.	"Gee-whiz stuff for its own sake isn't going to get any acceptance from the user." An information services VP for Merrill Lynch, PC Tech Journal, October 1988	Although it continues to sell to hard-core DOS users, Novell has ceased development on WordPerfect 6.0 for DOS Will Lotus 1-2-3 for DOS Version 5 be the last of its breed?
Novell NetWare vs. 3Com 3+Open	3Com figured if board vendor Novell could do a network operating system, so could they. Novell concentrated on software and ended up with 70 percent of the network market. 3+Open disappeared. Even 3Com runs NetWare.	While 3+Open was jointly developed by 3Com and Microsoft, it was also based on OS/2. IBM's network operating system and 3Com's were incompatible, although they were both based on OS/2.	"I almost don't care at what pace people choose to migrate OS/2. That's not something that will affect our sales." Eric Benhamou, then vice president of 30cm's software products division (now president). PCWeek, August 29, 1988	Just before 3Com released 3+Open, it acquired an internetworking company called Bridge Communication: that has proved to be the foundation of the company's current growth.
ISA vs. Micro Channel	IBM created a monster with the open ISA architecture of the first PC, and tried to tame it with a propnetary bus in the PS/2. No dice.	Your basic proprietary arrogance. IBM tried to keep anyone from cloning the Micro Channel architecture, and no application ran faster on it than on an AT bus.	"If anyone expects IBM to reintroduce the IBM AT, they are sadly mistaken." Unnamed IBM executive, PC Magazine, October 31, 1988	Mum's the word, IBM killed the Micro Channel without fanfare in 1993.
PCs vs. Diskless Workstations	Single-board computers with an Ethernet connection. No hard disk, no security problems, and no takers.	Client-server computing without the client. It combined the inflexibility of terminals with performance lags.	"The diskless workstation market will grow at a rate of 100 percent per year." Unidentified Dataquest analyst, June 1988	Diskless workstations have evolved into X terminals, a low-cost substitute for workstations running Unix.

# ... Battlefields of Today

Pick a peripheral. Choose a component. Select some software. Somewhere in the world there are two companies arguing about the best way to implement that technology. Both sides have points in their favor, but we don't want to bet on the Betamax (whose headstone reads "Here Lies Superior Technology"). We want to bet on the one that will hold its value. Here's a summary of our executive survey and our thoughts on these 16 technologies.

### Odds-On Favorites Sound Investment Advice

The Battle	What High-tech Executives Expect	Why One Might Fail	Quote of the Day	The Last Word
RISC vs. CISC	It's a split decision—half go with CISC based on Intel's dominance, and half with RISC based on future needs.	If software developers start creating multimedia-rich applications for RISC platforms, stand back.	"The majority of desktops will be RISC in 1998." Phil Pompa, director of RISC marketing, Motorola	Dominant Intel won't sit on its laurels. Its next likely weapon: a new chip being developed with Hewlett-Packard.
OpenDoc vs. OLE 2.0	While most agree that OpenDoc is the superior technology, the feeling is that OLE—the current standard—works well enough to win.	OLE 2.0 is already in 30 million Windows PCs. If major software vendors don't support OpenDoc, its livelihood will be in jeopardy.	"No matter what the technical merits, the winner will be the one that gets most tools and applications support." Philippe Kahn, CEO, Borland Int'l.	The push is for applications to become more document-centric. Working together, OpenDoc and OLE 2.0 can help to achieve this goal.
VL-Bus vs. PCI	Eighty percent of the executives we surveyed are putting their money on Intel's PCI architecture.	Perception: The VL-Bus was designed for the 486 processor, and thus their destinies will be forever linked.	"Some of the bigger [PC] players missed the boat on VL. They've told people PCI is great and haven't developed VL products." Ron McCabe, CEO, MiraLink	Invest in PCI's cross-platform speed-demon capabilities.
MAPI vs. VIM	Seventy-five percent of the executives surveyed think Microsoft controls this standard with MAPI and won't let go.	Again, Microsoft's power in the development community will rule the day.	"Simple MAPI is a moped compared to a Harley-Davidson." Tim Dempsey, director of development systems marketing, Lotus	CMC will make the MAPI vs. VIM wars irrelevant with one set of messaging calls and cross-platform support.
SCSI vs. Enhanced IDE	Another split decision— Enhanced IDE will be the natural evolution for the desktop; SCSI will dominate in servers.	If the evolution to Enhanced IDE isn't smooth, and we all go peripheral crazy, SCSI could win out.	"The only problems Enhanced IDE faces are the software configuration program and reliability." Allen Walker, vice president, DacEasy	Enhanced IDE will be able to handle your desktop needs, but keep SCSI on the server.
Packet Radio vs. Cellular Digital Packet Data	Eighty percent of the executives we surveyed went with CDPD, the cellular standard backed by AT&T, McCaw, and all the Baby Bells.	CDPD has a heck of a head start over Nextel's alternative technology. And with IP support, it makes mobile application developers' lives easier.	"If you think of [packet radio] as a wide-area intercom, it's an opportunity for us to leapfrog into a new market segment." John Caner, director of wireless data development, Nextel	Question: Are people adventurous enough to buy telephone service from a company that didn't start as part of AT&T? We're doubtful.
MPEG vs. Indeo	For now, everyone agrees that the video playback quality of MPEG compression can't be beat.	CD-ROM title developers may not want to develop for a hardware-dependent platform such as MPEG.	"Intel's scalable server project should help kick start the Indeo video-based desktop-server business." Gary Schultz, principal analyst, Multimedia Research Group	MPEG compression is the best solution for high-quality video now, but faster systems in the near future make software compression a viable option.
ISDN vs. ATM	Two-thirds of executives surveyed went with ATM, believing that ISDN will be a good solution for remote access in the short term.	ATM sounds almost too good to be true—it can handle different transmission speeds and works with fiber and	"The infrastructure cost [for installing ATM fiber] is staggering. If you're a regional Bell operating company and you have to show a profit, it's not going to happen	Look for ISDN to thrive in branch office and telecommuting situations. For campuses and office buildings, ATM will be a

twisted pair. But what if

if it's later than 1999

PC COMPUTING

big boon.

VP of marketing and strategic planning, DigiBoard

# The Office of the Future

### SYNOPSIS

THE FUTURE TODAY: Products that are changing how we mork 192

XEROX PARC: In the future, computers are everywhere. 192

SONY: The information appliances of tomorrow. 193

FROGDESIGN: The place where computers meet furniture. 194

MIT MEDIA LAB: Building computers comfy enough to wear, 195

ROAD TRIP: The Orwell vision vs. the Disney version, 198

REALITY BYTES: Cybercelebs look ahead. 200

igital Convergence. Ubiquitous Computing. Call it what you like, big things are happening. Really big. Technologies are colliding. Computing now encompasses everything from futuristic set-top cable boxes to pocket-sized PDAs. And new products and technologies are arriving almost as fast as businesses can deploy them.

This mind-bending pace of change shows no sign of slowing either. Two years ago the cement for the information superhighway wasn't even mixed; today, any company not writing I-Way access into its business plan is on a dead-end dirt road. Products that were cutting edge when we began planning this storyportables equipped with speakerphones and CD-ROM drives, for example—are already vesterday's news. Meanwhile, seductive new next-generation technologies such as voice recognition, real-time 3-D interfaces, and smart peripherals are vying for mindshare.

Change brings excitement, but it brings uncertainty as well. To stay ahead, companies have to plan ahead, and that often means writing twenty-first century technologies into a five-year business plan-no easy task when even the view out over 12 months is hazy. Prognosticators are certain to make embarrassing mistakes.

If the digital future is a bit murky, one trend is crystal clear: The technology juggernaut will dramatically (and quickly) change the way you work. The office of tomorrow will look different: Those big desk-hogging computers and peripherals will shrink until they become invisible. It will also move aroundlike the Filofaxes of today, Office 2000 may not even be a place you go to, but an accessory you carry with you everywhere. And it will function differently-workgroup tools and wireless connections will become a seismic force that will collapse convoluted one charts and let the best ideas bubble to the surface.

Other trends are also emerging. We talked to hundreds of R&D experts and other future-watchers to get a clearer picture of what

FUTURE PHONE: A new breed of digital assistant. BellSouth's Simon is a cell phone, fax, and pager.

SMART LINK: Sony's Magic Link PDA launches software agents to do your work for you.

VIEWPORT: Zenith's radiocontrolled CruisePad lets you roam the halls with a window to your desktop.

FLAT PANEL: Will flat-panel LCDs like NEC's LCD1280 be widespread by the year 2000? Monitor makers bet it will take more than five years.

BY WENDY TAYLOR



The Future Unfolds: Seductive new technologies are changing the way we work.



lies ahead. Here's a brief tour of some of the products available today (or very soon) that are changing the office and workflow as we know it. To peer even further into the future, we also visited some of the most prestigious research and development labs around the country, including MIT's Media Lab, and Xerox's Palo Alto Research Center (PARC), birthplace of the graphical user interface and the mouse.

Not all of the products covered on these pages are ready for prime time-many cost a small ransom. But all speak volumes about the shape of things to come. Universal Mailbox If there's any consensus among the future-

watchers we talked to, it's that the Internet fever we've seen in the last Snapshots: Devices year is not just a fluke. Not only like Apple's QuickTake will online destinations continue 100 digital camera are to proliferate-Apple, AT&T, Microsoft, and Sony are just a few changing how we of the companies offering new gather visual info.

commercial services-the types of information we receive and the ways in which we get it will change as well. Microsoft will include Radish Communications' Voice-View voice protocol in the next version of Windows, along with other communications plumbing. The idea? Create a universal mailbox to which all fax, voice, and data messages are routed. Likewise, the VoiceView protocol will let PC users send data and voice information across a single phone line-

ideal for document conferencing software, which lets two or more users simultaneously view, annotate, and edit live computer documents, U.S. Robotics and Hayes Microcomputer Products are already at work on modems that support VoiceView. AT&T has announced its own simultaneous voice/data (SVD) modem called DataPort 2001. It uses AT&T's VoiceSpan voice/data protocol. Both



Writable CDs: Pinnacle Micro's RCD-1000 lets you press your own discs. Prices on writables are falling fast.

### **XEROX PARC**

IN THE OFFICE OF THE FUTURE, COMPUTERS ARE UBIQUITOUS

Ask the folks at Xerox's Palo Alto Research Center about computers of the future, and they'll tell you that they're nonintrusive-and they're everywhere. As part of its Ubiquitous Computing study, Xerox has outfitted its lab with hundreds of wirelessly interconnected computers. The goal is to make computers so readily available that they are invisible.



- A. Chalk Board A wall-sized interactive surface, the LiveWorks division's LiveBoard is the digital equivalent of an office whiteboard.
- B. Wall Computers Scattered throughout the building are wall-mounted touch-pad displays that help you locate anyone in the building, schedule conference rooms . . . or check the last time someone brewed fresh coffee.
- C. Tab The smallest of these wireless devices is the pocket-sized Tab. An information doorway, a Tab is a cross between a PDA and a pager. It can deliver messages, check e-mail, and hold a small number of data files.
- D. Pad Notebook-sized Pads are the equivalent of electronic scratch pads. Instead of bringing pen and paper to a meeting, use a Pad to take notes.

TOGRAPH BY MARK RICHARDS

Flat-panel displays are coming, but conventional cathode-ray tubes aren't likely to disappear anytime soon. Sony's vision of the future includes offices and homes filled with smart monitors: display-based devices with built-in peripherals tailored to handle special tasks such as videoconferencing, faxing, and other communications.



A. Think Big Until now, the largest high-resolution desklop monitors maxed out at 21 inches. Sony's taken that one step further to create a mammoth 28-inch display, the biggest Trinitron you can buy. Unlike current grainy TV-sized presentation monitors, this one displays images at a supersharp 1,920-by-1,080-pixel resolution.

B. Better than Paper
Other things you can
expect to see in the future:
superhigh resolutions and
enhanced display clarity.
Sony already has the
technology to create CRTs
that offer more precision
and detail than paper.

C. Smart Monitors What will these smart monitors look like? Much like the one that sits on your PC today—except that they'll also be outfitted with a CPU, speakers, a printer, a camera, or a microphone.



Watch This: Timex's Data Link reads into memory meeting times you've entered in Microsoft's Schedule+.

protocols breathe new life into the aging analog telephone network.

Conferencing-Enabled Sharing this data is getting easier as well, thanks to new applications for video-conferencing and document conferencing. Creative Labs' Sharevision PC3000, for example, is the first videoconferencing product that lets callers simultaneously send voice, video, and data information across analog phone lines. Digital connections like integrated services digital network (ISDN) and

asynchronous transfer mode (ATM) will likely replace or complement analog plane connections in most offices, making full-blown videoconferencing systems such as Intel's ProShare Personal Conferencing Video System 200 standard fare on corporate desktops. Just as applications have become e-mail-enabled over the past few years, they're soon likely to become conference-enabled as well (see "Talking Heads," December 1994, page 222).

Wireless Elsewhere, the cord has been cur Printing, copying files, and connecting to other hardware in your arsenal will become ever more accessible. Infrared technology is already standard in portables like IBM's ThinkPed 755 series, Flewlett-Packard's OmniBook 600, and Sharp's PC-8700. Infrared equipped printers from HP and IBM are also in the pipeline now that standards are being forged. The pay-off Your portable and desktop CP will synchronize

files the minute you walk into your office. You'll also be able to queue jobs to the printer or fax machine so that they're processed as soon as your portable is within range.

Infrared isn't the only wireless technology to watch for. Radio and Cellular Digital Packet Data (CDPD) devices are also stretching the power of the ubiquitous cellular phone network for transferring data on the road. Sierra Wireless has developed a CDPD modem that allows high-speed, wireless transmission of



Unwired: Traveling Software's LapLink Wireless uses radio to sync files on your PC and portable.

packetized data over the cellular network used by portable phones. And Traveling Software offers LapLink Wireless, a hardware-software combination that retrofits any system and portable to syne files via tiny radio modules that attach to serial ports.

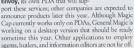
Smart Software Feel like you're drowning in information? As the connections from our PCs to the

ousside world become more complex. we'll need smarter software to manage the information coming at us. Sony's new Magic Link personal digital assistant, for example, is the first device to use both the Magic Capoperating system from General Magic and ATRAT's Personalink Services e-mail and information service. Together these technologies lit computer users easily program electronic agents, autonomous software routines that let you start a transactive of the computer users and program electronic agents, autonomous software routines that let you start a transactive of the computer users and the computer to the computer users and program electronic agents, autonomous software routines that let you start a transactive of the computer to the com

tion on your computer, then seam-

lessly pass off the request to one or





There will be other software refinements as well: 3-D and natural-language interfaces will also have us



3-D Input: With new interfaces will come new input devices like Creative Labs' cordless AeroDuet.

# Windows interface. ti

At Work: You already

like Ricoh's IFS66

fax/printer via a

can control peripherals

VISUAL AND FUNCTIONAL: THE SHAPE OF THINGS TO COME

Strategic-design firm frogdesign, architect of the distinctive Next computer and several of Logitech's ergonomic mice, is preparing for another kind of convergence: the merging of furniture and electronics. "In the future, we'll see microprocessors embedded in walls, tables, and chairs," says Strategic Design Manager Steven Holt.



- A. Sleek Change and opportunity will drive future technologies, such as video phones, digital cameras, and new wireless devices that are yet to be imagined.
- B. Touch Me The design of a product should be a celebration of content, part of the entire experience. Motorola's Magic-Cap PDA, Envoy, invites your hands to pick it up and hold it.
- C. Fashion Statement
  As markets mature, design
  becomes a differentiator.
  Frogdesign also crafted
  Packard-Bell's systems,
  which come with color
  panels for personalizing
  (and accessorizing) your PC.
- D. Building Blocks The pieces to Media Vision's Memphis Multimedia Upgrade System slide together so you can add, subtract, upgrade, and customize the look.

To visit MIT Media Lab is to wish yourself five years or more into the future, where computers are so friendly and easy to use that they actually see, hear, and talk, Imagine technology comfortable enough to wear-like an old sweater. Computers will dissolve into the walls and background; when you step into a room, it will know something about you.



A. Omni Sensorium As part of its Living Room of the Future project, MIT envisions the I-Way and its contents coming at

B. Universal Remote A wireless, modular, PDAsized remote controls the sound, lights, and

C. BodyNet Why carry a computer when you can wear it? One group at MIT is working on embroidering cellular phones or wireless computers into fabric and furniture

D. The Walls Electric sensors in the walls and detect and respond to your location in a room.

working smarter. Using technology born out of its PARC labs, Xerox's XSoft division developed Visual Recall-a document management/information visualizer that uses 3-D to convey relationships between files. This makes it easy to spot related documents or anomalies, or to view the hierarchical relationships between files. The program uses linguistic techniques (also developed at PARC)

> to perform more sophisticated queries. Search for the word mouse, for example, and it will also pull documents that contain derivatives of the word, such as mice.

> Intelligent Peripherals Still haven't mastered the advanced features of the fax machine? Expect to see peripherals gaining smarts as well. Hybrid devices such as Okidata's Doc-It 3000 scanner/printer/fax machine have been around for years. but entirely new devices are also appearing. HP's OmniShare, for

example, is an odd-looking gadget that combines a tablet-based computer with a fax machine and voice/data modem so that two people can simultaneously view, annotate, and talk about an electronic document. HP plans to eventually create a version for desktop PCs as well. Another device called a Soft-Board from Microfield Graphics is akin to a giant electronic chalkboard that connects to a PC (or Macintosh):

Hybrid: HP's OmniShare combines a tablet, fax, and phone for conferencing Anything written on the whiteboard documents also displays on the PC's screen.

Zenith, meanwhile, recently announced a device called a CruisePad, an LCD tablet that wirelessly connects to your main system so you can interact with it while you roam around the office. Nothing is stored or processed on the tablet-it's merely a viewport to your PC's display through which you can open and edit files, check your e-mail, or search a database. It's a harbinger of the pad-style computers at Xerox PARC.



Infrared Heats Up: Sharp's PC-8700 notebook includes infrared ports for wireless data exchange.

### The Future Today: Smart Peripherals

Other peripheral makers are working with Microsoft on its At Work software to let you control office devices via an LCD panel with a familiar Windows interface (instead of cryptic analog buttons). Ricoh's IFS66 is one of the first of these At Work devices. Unlike conventional fax machines, Ricoh's can double as a document scanner or printer, and more importantly, it can manage the faxes it receives by routing them to e-mail boxes on the network. It can even pull client lists from the network for broadcast faxing.

Microsoft showed us a prototype of an At Work telephone; look for copiers and other devices with Windows-like interfaces to appear soon. Novel Input Finally, over the

next few years you can expect your computer to gain sight, sound, and other senses. Digital cameras like Apple's QuickTake 100 give your PC eyes; snap a photo of an object and you can develop the image and e-mail it around the globe in seconds. For voice, you can buy products such as Verbex Voice Systems' Listen for Windows and Kurzweil's Voice for Windows, which let you command your PC to open files or highlight paragraphs. Many of these programs can also read text aloud and proofread spreadsheet numbers. They can't replace your keyboard, and true, continuous text-to-speech (and the other way around) is still years away. But even this rudimentary voice recogni-



Listen Up! Compaq's Vocalyst keyboard lets you record voice messages-and also talks back.

tion can be harnessed to read your e-mail. MIT's Media Lab, meanwhile, is taking this natural interaction one step further: Its technicians are working on teaching computers to respond to human gestures, eve contact, and hand movements.

Until now, one of the main obstacles to this kind of natural interaction has been the lack of processor bandwidth. But with CPU speeds soon hitting neargigahertz levels, that limitation will vanish as well. When it does, the workplace will never be the same,

### RESOURCE GUIDE

HOW TO FIND THE PRODUCTS IN THESE PAGES

### AeroQuet (408) 428-6600

Talking Modem: AT&T

Paradyne's DataPort

2001 simultaneously

data on analog lines.

transmits voice and

### CruisePad Zenith Data Systems (708) 808-5000

Reader Service No. 701

### Data Link Timex Coro

(800) 367-8463 Reader Service No. 702

### OataPort 2001

(800) 482-3333, (813) 530-2000 Reader Service No. 703

### Deskpro XL 566 Compag Computer Corp.

\$4,099 (with Vocalyst keyboard) Reader Service No. 704

### Ooc-It 3000 Okidata (800) 654-3282

Reader Service No. 705

### Envoy Motorola (800) 535-5775

LapLink Wireless

### Reader Service No. 706 Traveling Software

(800) 343-8080. (206) 483-8088 Reader Service No. 707

### Listen for Windows Verbex Voice Systems

(908) 225-5225

Reader Service No. 708

### Magic Link

(800) 352-7669 Reader Service No. 709

### NEC LC01280 NEC Technologies

(800) 632-4636. (708) 860-9500 Reader Service No. 710

### OmniBook 600

Hewlett-Packard (800) 443-1254, (503) 757-2004 \$2,800 Reader Service No. 711

### **OmniShare**

(800) 443-1254, (503) 757-2004 Reader Service No. 712

### ProShare Video System 200 Intel Coro

\$999 to \$2,499 Reader Service No. 713

### QuickTake 100 Apple Computer (408) 996-1010 \$699

Reader Service No. 714 RC0-1000 Pinnacle Micro

### (800) 553-7070, (714) 727-3300 Reader Service No. 715

Ricoh IFS66 Ricoh Coro. (800) 637-4264 Less than \$6,000 Reader Service No. 716

### Sharevision PC3000 Creative Labs

(408) 428-6600 Reader Service No. 717

### Sharp PC-8700 Sharp Electronics

(800) 237-4277, (201) 529-9593 \$3.700

### Reader Service No. 718

Simon BellSouth Cellular Corp. (800)-746-6672, (404) 249-5000 \$899 Reader Service No. 719

### SoftBoard

Microfield Graphics (800) 334-4922, (503) 626-9393 \$2,995 Reader Service No. 720

### ThinkPad 755C0 IBM Computer Corp

(800) 426-2968 Reader Service No. 721

### Visual Recall XSoft Corp., a division of Xerox

(800) 428-2995, (415) 813-6920 Reader Service No. 722

### Voice for Windows

Kurzweil Applied Intelligence (800) 380-1234 \$995 Reader Service No. 723



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# **Disney Wired**

The Mouse That Snored



It's fine to speculate about the future. It's even better to experience it yourself. So were all (mouse) ears to hear about Walt Disney World's Innoventions—a new Epoot exhibit featuring technology leaders like Apple, ATST, IBM, Microsoft, Oracle, and Silicon Graphics, and offering "a special sneak preview of products for the near future."

Maybe we should have been worried that the same Disney press blurb also hyped attractions like "Disney Presents Bill Nye the Science Guy... He'll... blow steam out of his nose ... pound nails with a frozen banana..." But we couldn't pass up a chance to see the future firsthand.

Epcot was lush and green, the result of the daily tropical deluge that had turned the place into an ankle-deep lake. We slogged our way into the exhibit through the roiling mosh pit of waterlogged futureseekers in cheap yellow Disney rain ponchos.

Some future. It was pretty much limited to a simulated home with fancy thermostats, a coffinsized AT&T telephone with enormous buttons, a dated picturephone, and a ton of video games and geeky educational software. Few actual products were on display. Instead, everywhere we saw printed signs that were short on devices and long on promises.

Tumbling 3-D images on rows of IBM displays caught my eye. As my finger pressed the screen where it said "Touch Here," the system instantly crashed. An omen?

Nearby was a chance to go behind the scenes to see previously secret workings in a laboratory as computer graphics "wizards" developed a virtual reality attraction. Silicon Graphics logos were plastered all over the place. But when we tried to enter. Disney goons spotted our press cameras and barred the door

We explained that we had made previous arrangements with the PR department. We showed them the entrance passes the PR folks had left for us at the main gate. We flashed the Disney PR card the press representative had sent us. No joy.

These folks were mean. They're the kind who would shotgun Bambi, then tear out his heart and stomp on it. Only after hours of phone calls back to the mouse

politburo did they arudainaly relent.



Near the exit were a few Apple Timbuktu: "Everybody workers toving with an inoperative likes my virtual Rocket global positioning tracker. We 88, they will ride in asked about other futuristic handstyle, movin' all held devices. They led us over to the Hammacher Schlemmer area

beside theirs. A pair of night-vision goggles sat on a shelf. "Could we take a photo of those?"

Next Ston...

along . . ."

Panic. The word must have gotten around. "No! I'm not authorizing you to take a picture!"

"But aren't those just the ones on sale in every Hammacher Schlemmer catalog in the country, and in the gift shop next door?"

"Yes, but I absolutely can't authorize you to take a picture."

We turned the corner, A Disney cop materialized



Promises. Promises: Notice all the great signs everywhere. Notice all the terrific products . . . hmm . . . there's gotta be one in here somewhere . . .



Pay No Attention to the PC behind that Screen: I am the great and powerful . . . oops . . . I am the goony and babyfaced . . . aw, forget it.

from out of the shadows and blocked our path. So far the whole visit had been a bust-and we were about to be busted. "I'd like to see

some ID, hovs ' Clots of tourists all around us were strobing their Instamatics like groupies at a Metallica concert. "Are you going to stop those people from using their cameras, too?"

"Yes, if we have to! Every single one!" He wandered off with our paperwork.

It's a tough mouse-eat-mouse world out there. What were they so intensely afraid of? "The Shocking Exposé: COMPUTER MAGAZINE BLOWS LID OFF THEME PARK RACKET!'

The Disney cop returned. It was clear that even after making arrangements and flying 3,000 miles, we were not welcome. We quickly headed for the exits.

Imagine This ... Apple's idea of a loke. The sign, we mean.

I turned to my photographer, a highly respected photojournalist who had spent some time in Iraq documenting the plight of the Kurds. He had told me how the police were everywhere over there, and how you had to really be on your toes to avoid getting into serious trouble. I asked him if he had been hassled more in Iraq or at Disney. "Disney."

Maybe this really was the future. Long lines. Video screens everywhere. Rampant commercialism. Everything overpriced, Lots of unfulfilled expectations. A consumer market expressed mostly as violent, expensive, kiddie games. Broken promises. Secret police popping out of the woodwork.

Walt must be spinning in his stainless steel cryotank time capsule.

PAUL SOMERSON is a Disney fan who hopes they can exorcise the wicked witches in their PR department.

# Cybercelebs Look Ahead

Prognosticating is dangerous business, but hey, we like to live a little dangerously. So, apparently, do a lot of other people. We asked a variety of technology watchers to gaze into their crystal balls and answer some questions about what the office of tomorrow will be like. Here's what they told us:

### In the year 2000, what will be the one new technology everyone will have to have?

"A PCS phone-the ones that will be smaller and cheaper than cellular phones. And a pager so you don't have to take and pay for calls from Bozos. And you'll need a Batman utility belt to carry all this crap." Scott Adams, creator of the cartoon Dilbert

"I don't know the technology, but it will provide realtime interactive communications to everywhere (without wires). The killer app will be either Mosaic Version 8.0 (maybe under another name) or Lotus

Notes Version 16."



"The most important office technology in the period around 2000 will be the wearable computer-one that projects a screen image into your visual field

while you move around." MARVIN MINSKY AI PIONEER. MIT PROFESSOR

> agents, etc. . . .), but you have to pay these people quite a bit of money and they're painful to deal with."

"The most? As technology invades every digitally enhanced microsecond of our lives, the roots of a techno-backlash culture will start to emerge. Our digital friends will push us to extremes of human efficiency. Major studies will link a shocking list of serious maladies to job stress, traceable to the maniacal work habits of a 00's generation that grew up on a silicon-rich diet." Matt Herron, vice president of engineering, froadesign

What's the coolest product of the future vou can buy today? "Magic Cap PDAs like Sony's Magic Link,"

Paul Saffo, director, Institute for the Future

"Apple's QuickTake 100 digital camera. Go to a wedding in the morning, and you can digitally switch the heads of the bride and groom in the afternoon before they leave for the honeymoon. I always take my QT to parties . . . it's too cool."

ity, and all will persist.'



"The coolest product of the future? Those car navigation systems. They're probably 100 times more trouble than using a map, but I know I'll have one eventually."

SCOTT ADAMS CARTOONIST

Frank Casanova, Apple's (admittedly biased) technology evangelist "PDAs. They are in the Model T stages now, but we will look back on them and realize that they were the forerunners of wallet PCs and many other portable information devices that will be popular in the next decade." Tim Bajarian, president of market research firm Creative Strategies

Describe the desktop/office of the year 2000: "The organizations of 2000 and beyond will be nimble

and shifting coalitions of smaller, networked teams who

group and regroup for specific contracts. The desktop of the year 2000 goes anywhere and fits in your pocket.

"It will be messy. It will be implemented in the com-

munications cloud and displayed on screens ranging from a projector to a pen-pad to a watch. You will be

able to talk to it, listen to it, write on it, and type into

Howard Rheingold, author and Internet visionary

### What will surprise us least about technology in the year 2000? What will surprise us most? "It's a billion-way tie for least-

editor of Release 1.0 newsletter

Esther Dyson,

surprising. I would expect religious objections to the proliferation of cool technology. It's too much fun to expect it to continue guilt-free."

"The least No. 1: Smaller, faster, cheaper. The song (and continued margin slide) stays the same. The least No. 2: Most people will still think Windows is 'good enough.' Agents will surprise us the most. I think agent technology will play an increasingly significant role in our lives in the future. There are agents today (real estate agents, travel

Frank Casanova, evangelist for

Apple Computer's Advanced Technology Group

### it. All these modes of input and output have their util-Esther Dyson

What technologies are we overlooking today that will play a big role tomorrow? "Global Positioning System will be integrated into

virtually all aspects of computing. We will be able to locate each other and resources with pinpoint accuracy anywhere on the globe." Patricia Seybold, founder of research firm Patricia Seybold Group

"Voice recognition, pattern recognition, encryption." Esther Dyson

"Bell's Theorem. It's more than I can explain here, but the gist of it is that experiments prove we can influence matter instantly from any distance. I wouldn't call it a technology yet, but a technology will develop around it. And it will change everything."

Scott Adams

## **Guess Which One is Easier to Use:**



### Actually, they both work at the touch of a button, but you can aet things done with ScanFX.™

If you thought pushing buttons was only good for doorbells and remotes, here's a refreshing surprise: ScanFX lets you control your PC and process documents by touching a single button.

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> processing center right to your fingertips.

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And that's in addition to the included business card recognition solution that lets you (touch) convert stacks of business cards to a Windows™ database. It even works with popular PIMs like ACT!TM, Lotus OrganizerTM, GoldmineTM and others.

ScanFX can even (touch) translate your documents from one language to another (supports English, Spanish, French and German; translation solution sold separately). Just insert English into ScanFX and receive the finished translation at your printer in minutes!

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# **Help:** Working Smarter

# Lock, Stock, and Password

If you handle sensitive or confidential data, you might as well just paint a target on your PC. An intruder can slither through a network cable and poke around in your hard drive without leaving a trace. Anyone who can get into your e-mail account can rifle your mailbox and even send messages under your name. If you're careless, a casual snoop

can even come right through the front door and take a quick peek at what next year's payroll numbers really look like.

Maybe it's just a curious coworker who's having a bad ethics day. Maybe it's a disgruntled soon-to-be-ex-employee who wants to deliver a trophy to one of your competitors. Odds are there's something on your PC that someone else would like to look at, and you'd prefer they didn't. At the very least, if you're using a PC in a business environment you should have a basic security program that keeps out the casual intruder. If your data is truly sensitive, you westiry to routine should be more sophisticated.

In the most basic terms, there are four techniques you can use to keep your data secure: Lock it up, hide it, scramble it, or take it with you.

Look it Up A good lock—the physical kind, with a key or a combination—is the first line of defense for all your worldly goods, at home and at the office. So, first make sure there's always at least one locked door between prying eyes and your data. For an extra level of protection, add a digital lock, too, in the form of a system-level password.

The Hardware Solution If your PC offers the option, use its CMOS settings for password-protection. Anyone who

wants to get in still can, but only if they're willing to pry off the cover of your PC, reest a jumper on the motherboard, and then reset all your CMOS values. That's enough hassle (and leaves enough be roughed to be provided to be stup routine by pressing F1 or Del at sartup. On Toshiba notebooks and most Compaq desktop PCs, you use a separate utility program to write a system-level password in CMOS.

\* The Windows Way Use a Windows screen saver with a password option. It's not exactly 007-class security, since anyone can bypass the password by rebooting and restarting Windows. But it will prevent a passing stranger from Alt-Tabbing through open windows to see any work in progress (another reason to make sure you save your work every time you walk away). The password option is located in the Screen Saver section of the Control Panel's Desktop applet. Your password

### **BEFORE AND AFTER**

USE ENCRYPTION TO KEEP SNOOPS OUT OF IMPORTANT FILES

The Names Have Been Changed: Encrypting a file is a drastic move—if you forget your password, you've lost that data forever. The alternative, however, may be worse.

1. Your Worth: Encryption slows you down—you have to decrypt the file to use it. So when should you bother? Just ask yourself what would happen if your No. 1 competitor read whatever you're working on. Documents that contains aslary or budget information—like the one at right, for example—are prime candidates for encryption.

2. Worthless: It would take a serious enemy to defeat even the simplest encryption scheme. This one, from Central Point's PC Tools for Windows File Manager, is easy to use and hard to decrypt without the password. Just be sure to remember your password, but never keep it lying around.



### SNAPSHOT

### USEFUL, THOUGH NOT HACKER-PROOF

Snoop-Proof: The screen saver in Norton Desktop for Windows has all the ingredients to make your system secure from casual intruders. Set a hotkey so you can clear your screen

in a hurry.





Novice-Proof: Use the free Windows Marquee screen saver to write a threatening bogus message. Coupled with a password, it'll keep the unsophisticated users away.

can contain up to 20 characters, including punctuation, and it's not case-sensitive. One caveat is that the encrypted password is a line in the CONTROL.INI file, and anyone can remove it with any text editor.

 The Network Lockout A network password is the most secure and flexible of all. Store your data files on a server, protect your desktop with a Windows screen saver, and anyone who wants to get at your data will run straight into a catch-22. They can reboot to get past the Windows screen saver, but they'll also lose the network connection and access to your confidential data. On a Novell NetWare network, you set the password by running the SYSCON utility from any prompt, choosing User Information, selecting the user's name (in this case, your own), and selecting Change Password, or by running SETPASS at any DOS prompt. Other networks provide similar facilities. Security, fortunately, is at the heart of a network.

Windows for Workgroups 3.11, which is a network operating environment, offers its own password options. They're generally less powerful than the Novell variety, but you can still lock some doors. If you've given other network users access to a directory or printer, for example, you can choose a read-only password, a full-access

password, or both. (Or neither, for that matter, if you don't mind leaving the back door to your system wide open.)

**Hide It** If they can't find it, they can't read it. That simple truth is the key to several effective security strategies.

 Oops The most embarrassing lapses are the accidents—you're working on a performance review, and the reviewe reads your first draft while you're away from your desk. The solution? Use a screen saver with a hotkey, like those found in After Dark and Norton Desktop for Windows. Or make your own screen saver by adding a program item to

the StartUp group which has the command line filename.scr /s, and then assign a hotkey to it. Then, before you walk to the water cooler, you can save your work and also blank your screen instead of waiting for the screen saver's timer to kick in. Of course, one of the best screen savers is the power switch on your monitor.

 One among Many It's also possible to hide a sensitive file in plain sight, by giving it an innocuous name instead of a tempting one. A snoop will probably zero right in on 95534LARY.XLS, but the same file is less likely to jump out of a crowded directory if it's called WALDO.WK1.

· Marked Hidden Old DOS tricks, like hiding files and directories, are less effective than they used to be now that Windows file utilities routinely let you see hidden, read-only, system, and even deleted files. But you can slow down an unsophisticated intruder by using File Manager's File Properties dialog box or the DOS ATTRIB +H command to hide the files and the directories they're stored in. Make sure you uncheck File Manager's Show Hidden/System Files option (follow the View menu to the By File Type dialog box). This way, any busybodies will have to jump through an extra hoop before they can even find the directory your file is stored in.

• The Null Use Alt-255 as part of a file-ame. When naming a file or directory, use a null as the last character (hold down the Alt key and type 255 on tunneric keypad to create it). The result looks like a space but doesn't act like one. Anyone using a point-and-shoot navigator like the Windows File Manager can bypass this trick in a hurry, but in combination with the DOS H attribute it will slow down a technically unsophisticated snoop.

Dollars to Doughnuts You can do a similar quick-and-dirty trick with shared resource names under Windows for Workgroups 3.11 by adding a dollar sign (\$) to the end of the share's name, and it won't show up when another network user

### SNAPSHOT

### KEEP 'EM AT BAY

Gatekeeper If the latest systems, it comes with password options built in to CMOS. Overcoming this security obstacle is a feat only the truly sawy hackers will attempt.



# Help WORKING SMARTER: Passwords, Encryption, and Common Sense

browses network resources. That's a minor hassle for legitimate users, who'll have to know the exact name before they can make a connection. But it's a surprisingly effective roadblock for coworkers who are just too curious for their own good (or yours).

Scramble It Even if someone can find a file and open it, there's not much they can do with it unless they can read the data inside. That's the theory behind encryption programs, which turn the data into a mess of characters that can be unscrambled only with a digital key, Encryption can be simple or sophisticated, depending on how closely you want your office to resemble the set of a Tom Clancy movie. · Password, Please At a minimum, use your application's password option. Every leading word processor and spreadsheet, for example, includes a document-level password option that also encrypts the file. Is it truly secure? Not really. There's a thriving trade in password cracking programs, fueled mostly by frazzled MIS peo-

for users who forget their passwords.

• Compress and Encrypt To move up one rung on the security ladder, try compressing and encrypting your data in a single step. With PKzip Version 2.04g, add the -s (for scramble) option. This adds

ple who have to unlock crucial documents

two levels of hassle—decompressing and decrypting—for a would-be snoop. Other compression programs offer similar options.

PGP If your parancia-meter is bouning around at the top of the scale, don't seated for anything less than Pretty Good Privacy. Forget the ironic understatement in the name—even the nastiest hackers can't crack its public key/private key encryption scheme. There are boutleg versions of PGP floating around on various bulletin boards, but the real thing, Version 2.7; is available in single-user, network, Windows, and CompuServe Information Manager flavors from ViaCrypt

Take It with You A thief can't steal anything from an empty office, and a snoop can't nose around in data that isn't there. To be truly safe, take your secrets with you. Copy that file to a floppy, and then erase it from your hard disk. (Just make sure you put the floppy disk in your pocket or lock it up securely.)

Be aware that DOS doesn't really erase that file; it just marks its space as unused. So an amateur detective can reconstruct some or all of the data marked for deletion using simple tools such as the MS-DOS 5 UNDELETE, or Norton Utilities, PC Tools, or another third-party utility. To be safe, use a utility such as Wipelnfo,

### PCContact BLOWN AWAY

### Shredder

The National Security Agency doesn't just erase floppy disks, it destroys them, literally, Security isn't just a matter of protecting what's there, it means eliminating what isn't supposed to be around any more. Jeff Prosise's Shredder. a Windows-based file deletion utility, first deletes files off your hard disk, then writes zeros into the sectors on your disk where those files used to be Download SHRED.ZIP from PC Contact's data library 3 (Utilities/Misc.). See page 308 for log-on instructions. Or call (800) 426-3475 to order the utility on disk from Public Brand Software

which is part of the Norton Utilities, or Jeff Prosise's Shredder, described above, to scrub those sectors clean.

ViaCrypt PGP (Version 2.7) / ViaCrypt (division of Lemcom Systems) / S99.98 DOS single user; \$124.98 Windows single user; call for multiuser pricing / (800) 536-684 / Reader Service No. 726

### **EXPERT TIPS**

USE COMMON SENSE TO FEND OFF WOULD-BE HACKERS

**Protect Your Turf:** Just as good fences make good neighbors, good passwords make good coworkers. Here are eight great suggestions for keeping your passwords hacker-proof.

- 1. Don't advertise. Don't write your password down. If you absolutely must, put it in a wallet, purse, or safe, not in a desk drawer. Whatever you do, don't out a password into a log-in script or a batch file.
- Don't stagnate. Change your password regularly.
   Some systems let the administrator force users to change passwords after a specified interval. Here's an easy schedule: Change your password at least every time you change the oil in your car.
- Don't trust. Unless it's a dire emergency, never give your password to anyone. Never include it in an unencrypted mail message. If you must divulge your password, change it as soon afterwards as possible.
- Don't be predictable. Avoid the obvious: your birthday, your college football team's nickname, your dog's name. your name.
- Don't make sense. Avoid real words—random combinations of letters and nonsense are much harder to guess. If you're a touch typist, try shifting

- your fingers one key to the left or right, so that, for example, ELVIS becomes WKCUA or R:BOD (standard Windows screen savers accept punctuation marks). Or shift each letter in the
- alphabet up by one, so that ELVIS becomes FMWJT.

  6. Don't be correct. Use mixed-case letters
  (upper- and lowercase) if your system allows it.
  ElvispResleY is a tough nut to crack, even for an
- automated password-attack program.

  7. Don't be frugal. Use enough letters. Password experts say you need at least eight characters.
- 8. Don't recycle. Have a junk password. Some BBSs aren't security sensitive but still require passwords. (A good example is a hardware manufacturer's BBS which you log onto in order to download the latest driver). Use a different password for those from the one you would use for your e-mail or CompuServe account, because you never know who may have access to your information.

FINE-TUNE WORDPERFECT 6.1'S MENUS AND BUTTONS

### The Best Word Processor Gets Better

Don't Compromise Being the best just isn't enough anymore. While WordPerfect 6.1 is the best word processor out of the box (see "MVP. Applications," December 1994, page 160), that doesn't mean out of the box is what's best suited for you. Fortunatek that's easy to fix.

Customize at Will You can customize just about everything in WordPerfect, from the toolbars and menus to the macros and templates. Because WordPerfect makes it so easy—and fun—to make these changes, the trickiest part is knowing when to stop. Spend some time customizing WordPerfect—you'll make it up in increased efficiency.

Eliminate Dead Wood The first thing to do is rid the button bars and rulers of the tools, buttons, and commands you don't use. For example, you're probably not going to place a graphic element in every one of your documents, so remove the Image icon from your toolbar (see "Excess Baggage" at right). While you're at it, make sure the menus are set up just the way you like them (see "Customize Your Menus" at right). It's a snap to rearrange menus, and you can even create your own. The features you use the most are the features that need to be the most readily accessible.

Gain Productivity Your finished product will be a word processor that is organized and works the way you work and think. No surprises. Give WordPerfect a few extra minutes of your time. That's all it will take, and it will be time well spent.

KYLA K. CARLSON

MAKEOVER

GIVE WORDPERFECT 6.1 YOUR OWN PERSONALITY



Excess Baggage: Start with toolbars and status bars. Get rid of items such as bold, italic, and underline, and use keystrokes (Ctrl-B, Ctrl-U) instead. Right-click on the toolbar and select Edit. Remove icons from the toolbar, add icons based on listed commands, and rearrange icons by clicking and dragging them around.



Identifiable Icons: Who says toolbars need icons? You can show labels instead, then put your toolbar to one side so you can fit more items on it. Right-click on the toolbar, select Preferences, then click on Options. No more cryptic pictures for you.



Be Prepared! To avoid the inevitable disasters, set WordPerfect to make timed backups frequently, and choose the directory where you want your backup files to land by selecting Edit, Preferences, and then double-clicking on File.

Selective View: Customize the status bar to show only what you really need to see. Right-click on the Status Bar, select Preferences, then choose the items that you want to display.



Customize Your Menus: Rightclick on any menu, select Edit, then drag any bar off the menu or to a new location. To add a new menu item, select a feature and drag it into place.



Open Sesame: WordPerfect's amazing File Open dialog box is also customizable. Choose which elements of the filename you want to show by clicking on Options. QuickList.

# Help WORKING SMARTER: Do It Yourself Vince & Woody Show You How to Create Your Own Apps

RECYCLE YOUR RESOURCES

## A Roll-Your-Own, Penny-Pinchin' PIM

sssst. Don't tell anybody, but the powers-that-be here at PC Computing decided to give us more rope . . . all the better to hang ourselves, ya know . . . hey, nobody reads this techie stuff at the back of the magazine, right? Every month we'll be building a commercial Windows application, one so incredibly slick that you'll want to download it and

use it to solve problems you're facing right now. That's not all. If you're of the pointyhead persuasion, we'll show you how to build the application, using tools you're likely to find lying around on your machine.

Along the way we'll go spelunking into the depth of app interconnection, macro languages, VBA, OLE Auto, and other worse-than-senseless things, bringing that faney-schmaney stuff down to earth. We'll tell you what worsk and give you a bit of warning before you get into serious trouble. If you learn best by seeing real-live examples, well, the programs you'll find here are are als a bety get.

Whether you're a new Windows user, corporate developer, hot-shot consultant, or weekend hacker, we hope you'll find a whole bunch of stuff in this column that you can use boom! right away.

To Business Personal information managers are great. That is, if you can find one that works the way you do. If you don't mind giving up 10 or 20 or 30 megabytes of hard disk space for all the programs and data. If you have a month or two to learn a new application. If you're very careful to synchronize the files between your desktop machine and your laptop before you leave the office, and resynchronize when you get back. If all the information you're likely to want or use fits into the PIM's organization scheme (lesseeee . . . where's the field for "ex-boss's mother-in-law"?). If you are willing to memorize the vendor's tech support number, so you know who to call when, inevitably, the thing crashes while you're on the road. Sound familiar?

Most PIM fans use only about onetenth of the capabilities of the PIM: Keeping track of names and addresses, phone numbers, tracking a few key meetings and conversations, that sort of thing. Most mobile PIM users typically have no end of headaches synchronizing files, and fitting that bloated beast on a teensy-tiny laptop. Kinda makes you wonder whether the PIM is worth the headache, no?

If your needs are modest, and you have a word processor with a decent macro language and an outlining capability, you probably have everything you need to roll

SNAPSHOT

your own PIM. Welcome to PPPIM, the Penny-Pinchii' Personal Information Manager, a Word for Windows-based PIM and contact manager, eleverly disguisted as a simple document with one attached marro. It occupies a whopping 3K of disk space. Synchronizing between machines is as difficult as moving one DOG file: The program and all the data come along for the ride. And it's completely free-form you can put notes anywhere you like, or search or print or customize to your heart's content—because PPPIM.DOC really is a simple document.

Outlined The key to understanding PPPIM is in the sneaky way it uses your word processor's built-in outlining capabilities. Most sufficiently sentient word processors these days let you show and hide parts of a document with a single click. The capability is called outlining. In Word for

Microsoft Word - PPPIM.DOC Flie Edit Ylew Insert Format Tools Table Window Help ± 10 BIU Times New Roman Chen, Vincent¶ 72241.2221¶ Chief Hack on WOPR 6.0.9 Need to cell him on 12/15 re: sales of the Hacker's Guide to WinWord, Second Edition WOFR pater familias, Hecker's Guides, Underground Guides, Mother Of ... sense Never seen in public; rumored to be a computer program, the result of an experiment in McLean gone sour Committed to the Coal Creek Canyon Home for the Terminally Obscure, 11/2493.5 LI-Ron, Yaelf 72241,22201 May be the human manif birth She left message !! month, or the month afte | Gates, Bill extenueting circumstance 1-206-682-8080, billg@microsoft.com Tibetan Children's Fund¶ 1-303-642-0492¶ Dinner at his place 7:00 pm 12/24. Remember to pick up ice cream at 7-11 on the way. 50-cents-off coupon in glove compartment of 911.

BEATING WORD INTO PLOWSHARES

Word on Steroids: Here's PPPIM.DOC and the dialog box that comes up from the PPPIMAdeEnty mearo. All names in this demonstration document are fictitious; any resemblance to real persons—living, departed, or otherwise—is completely coincidental. See the telephone icon at the top of the Toolbar? That's for one-touch dialing, compliments of PPPIM.

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# WORKING SMARTER: Do It Yourself Use Your Word Processor to Create a Home-grown PIM

Windows' Outline View, for example, you can click on the 1 button and Word for Windows will show only Heading 1 paragraphs. Click on the 2 button and you'll see both Heading 1 and Heading 2 paragraphs. Click on the 1 button again and all the Heading 2 paragraphs disappear. Aha!

PPPIM comes with a handy little macro that helps you add new entries to the document—the macro is particularly handy because if you use it religiously to add new entries, it'll automatically keep your list sorted. You can see the macro's dialog box in "Beating Word into Plow-

shares," page 206.

Wrist Rest If you don't want to do all the work yourself, the files are available in PC Contact's data library 2 (Templates/Macros) as PPPIM.ZIP (see page 308 for log-on instructions). Or, if you're modern-challenged, call (800) 426-3475 to order the disk from Public Brand Software. But if you're of the hackin' persuasion, follow along here as we build the whole application from the ground up.

To roll your own, start by creating a new template, fin Word for Windows, the document has to be a template so we can attach a respective to it—mere normal documents aren't allowed to have mercos? Click on Flie, then New, in the New box click on Template, and click on OK. Hit Enter a dev times, and save the template by clicking on Flie, then Save, and ejving it a name like PPPIM. DOT.

Now leave Word for Windows entirely. Out in Windows, change the name of PPPIM.DOT to PPPIM.DOC. That's an old trick for making a template look and act pretty much like a regular document. PPPIM.DOC will really be a template, but you'll soon start thinking of it as a regular ol' everyday document. Move PPPIM.DOC out of the Vemplate subdirectory to a convenient place, if you like.

Get back into Word for Windows, open PPPIM.DDC, and you're ready to write the macro called PPPIMAddEntry. Follow the instructions in "The Penny-Pinchin' PIM Macro," at right, and be very careful to type the whole program precisely as it appears there. No, you won't break anything if you misspell a command. But we get complaints of the "You guys really screwed up that macro; it keeps giving me Error 100, Syntax error" genre, when the problem is a simple typine grory. Embarrassine.

simple typing error. Embarrassing, Next, put a "Double-click to Start PPPIM" box up at the top of the document by sticking something called a Macro-Button lets you put text (or even a picture) on the screen, spring-loading it so that double-clicking on the text (or picture) cranks up a macro. It's much easier to do than to describe: Just click on Insert, Field; under Categories pick Document Automition; under Field Names, pick Macro-Button; then down in the Field Codes box, make sure the field look like this

MACROBUTTON PPPIMAddEntry ⊃
□ Double-click to Start PPPIM

In WinWordSpeak, that field says two things: First, Word for Windows is to dispay the text string Double-click to Start PPPIM; second, if anybody should have the temerity to click anywhere in that string, Word for Windows is to run the macro called PPPIMAGE(firsty—which just happens to be the macro you want to run. (You should see the text "Double-click to Start PPPIM" on the top line; if you see something weird with [cut] brackets ]

and other mumbo-jumbo, you have View Field Codes turned on. If that's the case, click on Tools, Options, View, and clear the checkbox on Field Codes.)

Try It. You'll Like It Now you're ready to try the macro. Double-click up there on the first line, and fill in the dialog box. Click on OK. In a split second, you should have your first entry. Try adding a couple more entries. Then, flip into Outline view by clicking on View, then Outline, or by clicking on the Outline View button above the status line. (It's the third one from the left; look at it long enough and it begins to look like an outline. Or you go crosseved. One or the other.) Press the button marked 1. You can see only the names, right? Pick a name and double-click on the plus sign in front of it. See how all the information-phone number, notes, the whole shootin' match-pops out at you? Doubleclick on the plus sign and it goes away, with the name still showing. Then, click on the 2 button and watch all the phone numbers pop up underneath the respective names.

Remember that you're doing all of this in your word processor, and all the capabilities of your word processor are at your beek and call. Want to make the Headrigh rames stand out in, say, 10 point bold Arial Psay. Click on Format, Style, Headrig L, ticks on Modify, Format, Font, and switch over 10 10 point bold Arial. Click on Kort of 10 point bold Arial Psay.

### SUPERSCRIPT

THE PENNY-PINCHIN' PIM MACRO

This is the macro that drives PPPIM.DOC. In Word 6.0 for Windows, open PPPIM.DOC, and click on Tools, Macro. Make sure "Save changes in" shows PPPIM.DOC, type PPIMAddEntry, and click on Create. Then type, type, type.... When you're finished, click on File, Save.

Sub MAIN

REM PPPIM Version 1.0 © 1994 Pinecliffe International and

REM Artemis Associates. All rights reserved. First appeared in REM PC Computing, US Edition, January 1995.

Begin Dialog UserDialog 536, 235, "PPPIM"

Text 10, 9, 46, 13, "&Name:" TextBox 10, 23, 390, 18, .txtbName

Text 10, 45, 57, 13, "&Phones:" TextBox 10, 59, 390, 18, .txtbPhones Text 10, 81, 38, 13, "&Note:"

TextBox 10, 95, 515, 80, .txtbNote, 1 OKButton 417, 12, 110, 21

CancelButton 417, 37, 110, 21 End Dialog

Continued on page 210

Exactly What Did The Doctor Say?

Symptoms & Causes

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### Help WORKING SMARTER: Do It Yourself Follow Vince & Woody's Macro to Create a PIM That Works

phone numbers blue? Piece o' cake. Click on Format, Style, Heading 2; click on Modifity, Format, Font, and make it so, Number One. Want to indent the notes? Click on Format, Style, choose Body Text (which is the style of the notes entry); click on Modify, Format, and Paragraph. Change the appropriate style, and the lines follow along.

As long as you keep the Heading I entries alphabetized, PPPIM will keep on truckin'. You can add or modify an entry by scrolling down to it and simply changing it, the way you normally would with your word processor—or you can use the PPPIM-AddEntry macro, if it's easier for you.

You're the Boss This is just the beginning, of course. You can customize PPPIM to your heart's content. To add another field-say, an address-you'll have to jiggle the UserDialog, adding TextBoxes to accommodate the additional information, (It's easiest, at least the first time around, to do that by copying the entire dialog box to the clipboard, then using Word for Windows' built-in dialog editor.) Then you'll have to add a new Insert command down at the end, to put that information in the document. Finally, you can use FormatStyle to apply whichever style you may choose-the address could be Heading 3, say, to allow the user to bring up the name, phone number, and address for every entry, with just one click.

That's not all. There's a way to click on a phone number, and have the computer dial the phone. (That's why you can see a little phone icon on the Toolbar.) The macro is a bit too long to reproduce here, but if you download PPPIM Zile from PC Contact, you'll get the whole shooting match. It's derived from Scott Krueger's Dallft macro, and it works like a champ; click on the phone number, click on the telephone icon on the Toolbar, and beep-boop-be-bop. PPPIM becomes a full-featured phone books, speed dialer, and entry-level contact manager.

Cheap at half the price.

WOODY LEONHARD & VINCENT CHEN

It's a conspiracy: SCOTT KRUBGER, VINCENT CHEN, and WOODY LEONHARD wrote the Hacker's Guide to Word for Windows If you do advanced Word for Windows stiff, you need that book. Got a good idea? Bug Woody at 72241,2125, or Vince at 72241,2221. (Yes, of course these are CompuServe IDs, what che?)

### SUPERSCRIPT PENNY-PINCHIN' PIM, THE SEQUEL

```
Continued from page 208
  Dim dlg As UserDialog
  If Dialog(dlg. - 2) = 0 Then Goto Bye
  Then
         msg$ = "The entry: " + dlg.txtbName +" is already in the " \
                   + "document, Do you want to replace it?"
         If MsgBox(msg$, "PPPIM", 3 + 32) <> - 1 Then Goto Bye
         FditGoTo .Destination = "HeadingLevel"
         EditClear
  SelType 1
  InsertPara
  CharLeft
  FormatStyle .Name = "Heading 1", .Apply
  Insert dlg.txtbName
  InsertPara
  FormatStyle .Name = "Heading 2", .Apply
  Insert dlg.txtbPhones
  InsertPara
  FormatStyle .Name = "Body Text", .Apply
  Insert dlg.txtbNote
  Bye:
  End Sub
  Function FindEntry(findname$)
  retVal = 0
  done = 0
  ScreenUpdating 0
  WaitCursor 1
  StartOfDocument
  EditFindClearFormatting
  EditFindStyle .Style = "Heading 1" : EditFind .Find = ""
  While (EditFindFound() And Not done)
         currName$ = TrimLine$(Selection$())
         If findname$ = currName$ Then
                  retVal = - 1
                   done = -1
         Elself currName$ > findname$ Then
                   done = -1
         Else
                   If SelType() <> 1 Then CharRight
                   EditFind .Find = ""
         End If
  Wend
   If Not done Then EndOfDocument
   ScreenUpdating 1
   WaitCursor O
   FindEntry = retVal
   Function TrimLine$(line$)
   retVal$ = LTrim$(RTrim$(line$))
  If Right$(retVal$, 1) = Chr$(13) Then
         retVal$ = Left$(retVal$, Len(retVal$) - 1)
   TrimLine$ = retVal$
```



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phone numbers blue? Piece o' cake. Click on Format, Style, Heading 2; click on Modify, Format, Font, and make it so, Number One. Want to indent the notes? Click on Format, Style, choose Body Text (which is the style of the notes entry); click on Modify, Format, and Paragraph. Change the appropriate style, and the lines follow along.

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### SUPERSCRIPT PENNY-PINCHIN' PIM, THE SEQUEL

### Continued from page 208

Dim dlg As UserDialog
If Dialog(dlg, - 2) = 0 Then Goto Bye
Then

msg\$ = "The entry: " + dig.txtbName +" is already in the "\
+ "document. Do you want to replace it?"

If MsgBox(msg\$, "PPPIM", 3 + 32) <> - 1 Then Goto Bye
EditGoTo. Destination = "HeadingLevel"
FditClear

### Fnd If

SelType 1 InsertPara

CharLeft
FormatStyle .Name = "Heading 1", .Apply

Insert dig.txtbName

FormatStyle .Name = "Heading 2", .Apply Insert dig.txtbPhones

Insert dig.txtbPnor

FormatStyle .Name = "Body Text", .Apply

Insert dlg.txtbNote Bve:

End Sub

Function FindEntry(findname\$)



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### **Questions, Answers, and Tips**

o you thought the function keys on your keyboard were useless? Well, they aren't. Read on: We show you how easy it is to program them in DOS. And did you know that dBASE for Windows can store images? We answer these and other questions about DOS, Windows, and hardware issues, and share tips and tricks for your favorite applications.

### **CACHE IN ON BUFFERS**

Question: One month, someone suggests a setting for BUFFERS in CONFIG.SYS and I make a change. The next month, somebody else advises me to do something different. What gives?

PETER GREENSTEIN

Answer: Although they aren't related, BUFFERS goes with FILES like Heckel goes with Jeckel, so we'll talk about both of them. First, what the heck do these things do? Well, BUFFERS controls one of DO'S disk caches a cache that's very different from SmartDrive (SMARTDRV.EXE.), the superfast cache that comes with current DO'S versions. FILES, on the other hand, controls how many files DO'S (or a DO'S program) can access at one time.

You set up your BUFFERS in CONFIG.5YS with a line like BUFFERS=20. This line allocates 20 chunks of memory, each about 532 bytes long, for a total of 10,640 bytes of memory—about 10K. (To find out exactly how much memory you're using for BUFFERS, type MEM/D/P in MS-DOS 6.2x, or MEM/D MORE in MS-DOS 6.6 [If you load DOS high (with a line like DOS=HIGH in CONFIG.5YS) these buffers will take up high memory if there's room. If there isn't, they'll occupy low memory.

However, if you have a line like BUFFERS=20,8, you are creating a secondary buffer cache, too (that's what the 8 is). If you have a system with an 8086 processor, a secondary buffer cache can gain you some speed. If you have anything later, use a real disk cache like SMARTDRV it's much faster.

Actually, if you can, use SMARTDRV and set BUFFERS to a low value like 1 or 4. (Don't remove the BUFFERS= line from CONFIG.SYS, though— DOS will use its default setting of BUFFERS=15 if you do that.) SMARTDRV is considerably faster and more efficient than BUFFERS, and very few programs these days require BUFFERS to be set.

Next, to FILES. By default, you'll have the line FILES—B in your CONFIG.SYS. But if you do anything serious with DOS, you'll need a line more like FILES—30 or FILES—40 or FILES—50 to you're a strictly Windows user, you can keep that line as low as 20. Windows has its own peculiar way of handling multiple open files (it's called multitaskine).

So to answer your question, the odds are very good that you can set BUFFERS very low because you're probably using SMARTDRV as a primary disk cache. By doing this, you'll free up extra memory and probably get better performance.

### STEP BY STEP

IMAGES IN DBASE FOR WINDOWS

Binary Bundle: One of dBASE for Windows' new field types is binary, in which you can store graphics files. Like memo data, binary information resides in a table's DBT file, and requires special handling to store and edit. Follow these steps to add pictures to your dBASE tables.

1. Design: You probably need to create a new table with the Table Designer by clicking on File, New, Table. It you're modifying an existing table, choose File, Open, select the table, and click on Design Table Structure. In either case, add a binary held for images, then click on File, Save and Close.

2. Load. Add an image file. Click on Table, Add Records to create a record in a new table. For an existing table, choose Table, Edit Records, and use the VCR butter of the Table in the Ta

ROGER W. SAUER FAIRFIELD, CALIFORNIA





### ONE APP ONLY

Questions: I have a DOS computer and most of my programs are DOS programs. I use Word for Windows as my word processor, bowever. I would like a batch file or some kind of Word macro that will launch Word for Windows, and, when I exit Word, I would like to drop back to DOS. Can you help?

GIL BUSKE STAMFORD, CONNECTICUT

Answer: Sure, but not with a batch file or a macro. The easiest (and best) way to accomplish this is to trick Windows into thinking that Word is your shell (normally, that's Program Manager's job). Open your SYSTEM.INI file and change the line that starts

-shell=

to read

shell=c:\winword\winword.exe

Or change the Path so that it points to the Word for Windows program. Oh, and make sure that CaWINWORD is in your Path. This way, when you start Windows you'll be dropped into Word for Windows, and when you exit Word you'll be dropped back to a DOS prompt.

### ZERO IN ON THE PROBLEM

Question: Do your debug scripts use "O"s or zeros? I can't tell from looking at the print!

JOHN B. MANDLE Los Altos, California

Answer: Many pe0ple ask this question.
At first, we thought they needed to have their eyes examined. Now we realize that we should have put a line through the zer0s in our DEBUG scripts.
With the exception of the name

With the exception of the name line (the one that starts with N), all the circular (or ovoid) characters in DEBUG scripts are zeros.

### FORMAT OVER CONTENT

Question: Why can't you quick-format a disk that has been used by the Windows backup program that comes with DOS 6? When I try to use FORMAT /Q (for a quick format) I get the error "Invalid existing format."

RICHARD DAVIES MOORE, IDAHO

Answer: The FORMAT / a command basically is more like a DEL command than a true FORMAT command—it doesn't actually read every sector on the disk, it just erases the file allocation table (FAT), which holds information about where all the files are. The Windows' backup program formats floppy disks in its own special format, so FORMAT / a doesn't work because it can't access this table.

### EDIT'S EXTRA RETURNS

Question: Why does DOS's EDIT put two or three carriage returns at the end of one-line batch files? Is there any way to fix this?

Richard Davies Moore, Idaho Answer: To answer the first question: Just because: To answer the second: No. At least, not with EDIT. However, you really don't need to use a fullscreen text editor like EDIT to create a one-line batch file: It's faster and more efficient to use the CDPY CON command. For example, if you want a batch file that runs SCANDISK with some of your favorite parameters, you could use a command like this.

> COPY CON SCAN.BAT SCANDISK/AUTOFIX D F/NOSUMMARY/NOSAVE

Type the first line at the DOS prompt. Then type the second line, and press F6 (or Ctrl-Z) followed by Enter to tell COPY that you're finished entering input (the "2c haracter will be inserted). If you TYPE SCAN.BAT, you'll see you rone-line batch file. COPY CON is very limited in that it has no editing capabilities except for the line you're currently typing (you can't scroll back and forth between

It's 3:50 pm. You've just finished the final revision to the sales plan. Then the phone rings. "We're sending over 10 new pages of competitive info." Click. Good thing they lock the windows on this floor. You have to get it into the plan by the end of the day. What now?

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lines). Use this method for batch files up to four or five lines long-after that, you'll be too prone to typos. If you wish to remove extra hard returns from the end of an existing batch file. use another text editor (any word processor that can save text or ASCII files will do) to strip those extra lines from the file.

### HAVE A BLACKOUT

Question: I seem to remember that it's possible to black out all the messages that appear during boot-up. How?

Dr. Johannes van den Bergh

FOUNTAIN HILLS, ARIZONA

Answer: You could wear really dark sunglasses, or just not look at the screen. Otherwise, you're going to have to do some editing, and you're not going to get complete results. Open AUTOEXEC.BAT and add the following to the end of every line:

>NUL

For example: LH DOSKEY>NUL

That's right: A greater-than sign, then the word NUL. This will redirect the output of every command to what's

called the null device, a.k.a. nowhere, Unfortunately, you can't do this in CONFIG.SYS-you'll get error messages like "Unknown parameter."

### KEYED UP

Question: Every keyboard has at least ten function keys that seem useless under DOS. Is there any way I can program them?

HASAN BJAILI SALT LAKE CITY, UTAH

Answer: Tonsils. The human appendix. Facial hair. The national debt. Everything has a place in the grand scheme of things. Even function keys.

First off, some of the function keys are already programmed. Like F3: Press it and you'll recall the last command you executed (almost all the time, anyway-some commands like EDIT and WIN clear this small

memory buffer). F2 has a similar function: Press F2 followed by a letter and you'll recall the previous command up to but not including the first occurrence of that letter. Oh, and you can press the right arrow key to recall the previous command one character at a time.

Some keys are already programmed, but they perform their tasks only when your system is booting. When you see the message "Starting MS-DOS . . . " you can press either the Shift or F5 key to bypass CONFIG.SYS and AUTOEXEC.BAT, or press F8 to step through them one line at a time.

But what you really want is to use ANSLSYS to redefine your function keys. You'll need a line in your CONFIG.SYS that loads ANSI.SYS. Try this:

DEVICE=C:\DOS\ANSLSYS /X

Or, if you have a 386 or later processor you can use: DEVICEHIGH=C:\DOS\ANSI.SYS /X HOT TIP

WORD 6.0 FOR WINDOWS

Problem: You want to close all your documents quickly.

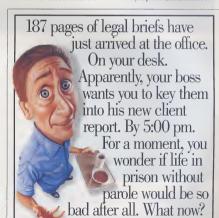
Solution: Hold down the Shift key and select File, Close All. The Close All option appears only when you're holding down the Shift key.

> JAMES PORTANOVA FRESH MEADOWS, NEW YORK

Why the /X? Well, it tells ANSI.SYS to be on the lookout for an extended keyboard (programmers never could spell very well).

Next, you're set to start redefining your keys. Save CONFIG.SYS and open AUTOEXEC, BAT, You redefine keys with the PROMPT command. So if you type

PROMPT \$e[0:59:"DIR"p\$p\$g when you press F1, the command DIR





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will run. What's happening here? Well, you probably already know the PROMPT command—it just defines the prompt you see by default: Most prompts are \$\$\frac{8}{9}\times 0"\$ show me the drive and directory that I'm in." The \$\$\frac{9}{9}\times 0"\$ show prompts are \$\$\frac{9}{9}\times 0"\$ show the first of the prompts are \$\$\frac{9}{9}\times 0"\$ show the first of the prompts are \$\$\frac{1}{9}\times 0"\$ show the first of the prompts of the p

be on the lookout for what comes next. The stuff between the left bracket (which opens the key definition) and the first lowercase letter of (which closes it) is the real magic. The first two numbers separated by a semicolon (0;59) together are the code for the F1 key. You then have a semicolon to separate the key code from what you want it to do-in this case, put the command DIR on the command line. So you should surround your command with quotation marks to protect it from DOS. Then comes the letter p to tell ANSI.SYS that you're through redefining this particular key. Then you have the same old \$p\$g that you're probably used to.

If you're going to do this in your AUTOEXEC.BAT using EDIT, the MS-DOS text editor, you can't use the \$e notation to mean Escape. Instead, press Ctrl-P, then press the Esc key. The resulting onscreen character will be a left-pointing arrow.

Below is a table of some of the function key codes you can use. First we give the key, its code, then the code you get when you hold down the Shift, Crd, or Alt key while pressing that function key. In fact, or was used to the code you can redefine army key on your keyboard. Be careful, though: You can get into a lot of trouble if you mess up.

Key	Code	Shift-	Ctrl-	Alt-
F1	0;59	0;84	0;94	0;104
F2	0;60	0;85	0;95	0;105
F3	0;61	0;86	0;96	0;106
F4	0;62	0;87	0;97	0;107
F5	0;63	0;88	0;98	0;108
F6	0;64	0;89	0;99	0;109
F7	0;65	0;90	0;100	0;110
F8	0;66	0;91	0;101	0;111
F9	0;67	0;92	0;102	0;112
F10	0;68	0;93	0;103	0;113
F11	0;133	0;135	0;137	0;139
F12	0:134	0:136	0:138	0:140

For more information, refer to the DOS online manual by typing HELP ANSI.SYS at any DOS prompt.

### JUST HOW SUPER IS IT?

Question: If I buy a Super VGA monitor, can I use it with a VGA card?

> YI-HAO HUANG ATHENS, OHIO

Answer: Sure, but you won't take advantage of your monitor's potential. A vanilla VGA adapter can display a maximum resolution of only 640 by 480 pixels. A Super VGA monitor ad display at least 800 by 600 pixels which lets you view nearly 30 percent more information onseree.

Solutions provided by Matthew Lake, Yael Li-Ron, John Montgomery, Scott Naylor, and Wendy Taylor. Technical assistance provided by John Walkerbach.

### CONTACT

GET IN THE OUTUE

### Got a question, tip, or step-by-step solution to a problem?

Send it to us right away! We pay \$50 and up for tips and step-bysteps that we publish. No question is too simple or too difficult, so go ahead, challenge us. We will publish your tips on using undocumented features in any major app, and some minor ones as well. Our address is: Q&A, PC Computing, 950 Tower Lane, 19th Floor, Foster City, CA 94404. Better yet, use e-mail: CompuServe at 72241,2220: America Online at HelpPCC: or reach us via the Internet at yli-ron@pcc.ziff.com. Or fax to (415) 578-7029. Don't forget to include your address and a daytime phone number.

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Circle 261 on reader service card.

## **Help:** Buying Smarter

### Macs and PCs—Can We Talk?

It's top priority. You and your colleagues are working on an ad campaign layout or a competitive apysis that will sway a major decision. Your copywriters are at their PCs, typing up a storm, while your designers are creating illustrations on the Macs. You try to marry the two products and . . . nothing. You can't get the Mac files into

your PC application. Nor will it work the other way around.

Trying to share data with a Macintosh can be like asking for directions in a foreign country. You ask questions and get answers and understand nothing. Fortunately, with a few pieces of knowledge and some software tools, you can read and write Macintosh files as if you were a native.

Dance Steps Trading documents with Mass involves several steps. The first is to move the file from the Mac to your PC. You can do this with a simple floppy disk or over anetwork. Either way, you'll need an application that understands the file's format.

If floppy disks are the delivery medium of choice, either you or the Macusers will need a suffly that enables your machine to read foreign disks, since Mass format disks differently from the way PCs do. Insignia Solutions and DataViz both have products that enable your PC to recognize a Mac floppy disk. (See page 222 for more information.)

If your goal is moving editable text from one platform to another, the simplest format to use is pure ASCII text. Most DOS, Windows, and Mac applications can save a document as ASCII text. The first 128 ASCII characters—the lowercase and capital letters, as well as numbers and punctuation marks—are common to both PCs and Macs. Beware, however, of the so-called upper 128 ASCII characters, which differ on Macs and PCs. These include Greek letters and other symbols, and they don't convert with the ASCII format.

The limitation of ASCII text is that it is text only. All of a file's formatting information—such as bold, italic, fonts.

and tables—will be lost or converted to meaningless text strings when a file is saved in pure text format.

Same App, Different Platform One of the benefits of using the same applications for your Mass and PCs is that each version of the software can read files created with the other version and keep the formating, including embedded graphics. This is

true for Wordl'Perfect 6.5 for Windows and Wordl'Perfect 3.5 for Mac, as well as for the Mac and Windows versions of Microsoft Word 6.0 Word for Me users can also save in DNS format or rich text format (RTFs), which can be read by most versions of Word for Windows. The graphics programs Painter, PowerPoint, and Quarther Stress come in Mac and TC versions that can read the other's files. Some applications, such as Adobe Photoshop and Microsoft Excel, are multilingual, and can read or with the file formats of several applications.

However, there are still many Mac-only and Windows-only applications, as well as dozens of Mac and PC file formats that some applications can't read. The solution is to translate between file formats using a filtering application, also called a file

### SITE ANALYSIS

HOW CROSS-PLATFORM FILE TRANSFER

Gain Time, Reduce Expenses The ability to move quickly from a concept to a well-thought-out, finished product is a competitive weapon. Efforts to streamline this process birthed such collaborators as ad agencies, production houses, consultants, and overnight mail services.

New electronic tools have streamlined the process by giving us immediate, nonpaper media for viewing, commenting on, editing, and collaborating on projects in progress. It saves time and it saves money.

Advertising agency Buck & Pulleyn and its client Eastman Kodak wanted to reengineer the way sales literature and brochures evolved from concept to print. They used Adobe Acrobat to cut production time by 50 percent and costs by 30 percent.

The old process was typical of the advertising industry. Layouts and proofs were reviewed during meetings, or they were mailed out for review. The process was expensive, inefficient, and time-consuming.

Today, Buck & Pulleyn sends electronic versions of complete layouts between vendor, customer, and printer via CompuServe. The new process, which makes use of a class of electronic tools called portable document software (PDS), allows faster feedback and input from more people. Electronic proofs are routed without requiring the recipient to have the software or fonts used to create the proof.

The Bottom Line Buck & Pulleyn has dramatically cut costs in both time and fixed expenses. It reduced the number of meetings, and generated quicker responses to customers and better communications among the vendor, customer, and third parties. It also won substantial savings by virtually eliminating the need for overnight mail and significantly lowering reproduction costs. translation program. These filters will convert formatting information as well as all 256 ASCII characters between a variety of

Mac and PC programs.

The most versatile translators are Word for Word from Mastersoft and Conversions Plus from DataViz. Both are general-purpose file translators, digital Rosestta Stones containing thousands of conversion combinations between Mac and PC word processing, database, spreadsheet, page layout, and other formats.

One of the trickiest aspects of converting files is forns. If you don't have the original forn installed on your PC, the translator programs will try to substitute the closest one available. It helps to have the same type of forns on both PCs and Macs. While Macs use both TrucType (the most common Windows fornt technology) and Adobe Type I fornts, the latter is far more common in Mac desktoop ushlishine.

Universal Document Formats If all you need to do is distribute a document that is to be read and not edited (the finished copy of an annual report, for example), you can convert it to a so-called universal document format before you send it on. In these cases, the authors create a document with the goal of broadcasting

the information it contains, not its file format. However, readers can annotate the document.

The technical challenges of these read-and-comment situations can be solved by a new breed of software called a universal document reader. Some examples are Alobe's Aerobat, No Hands Software's Common Ground, WordPerfect's Envoy, and Farallon's Replica. Such products convert your documents into read-only images. Users can then read, annotate, highlight, and suggest changes using the

product's markup tools.

The Paper Detour As an absolute last resort, you may consider printing out the files on one platform, then scanning them in on the other. You'll keep all your formatting, but you won't be able to edit the content of the files very easily—they're now bitmapped images. If you run optical character recognition software, you'll gain access to the text, but lose the formatting—back to square one.

HIT LIST

MAC-TO-PC LINK

Planning a procedure for file sharing between PCs and Macs can save you time and money.

- Save money. Use cross-platform file formats—rich text format (RTF) and ASCII, for example—to share simple text.
- Use a portable document format (PDF). Or, use the same application on both platforms to circulate, comment on, and revise documents with lots of graphics and formatting.
- Scan documents. Use OCR software only if you don't need to retain the original text formatting.

innovative workarounds.

Some day, we will all be able to share information without worrying about the application and platform on which it was created. For now, however, we have to use

ROBERT L. HUMMEL & JOHN RIZZO

ROBERT L. HUMMEL is a contributing editor at PC Computing. JOHN RIZZO is technical editor of MacUser and author of several crossplatform computer books.

### STREAMLINES THE COOPERATIVE EFFORT



There are two basic problems with converting files from a Macintosh to a PC and back; disk formats and file formats.

Disk Format: For a computer to use a disk of any kind (hard, floppy, Bernoulli, whatever), the disk must be formatted. Formatting a disk puts a file system onto it. DOS-based Flocation table (FAT) system. On Macintoshes, the file system is called the Mac file system. Neither machine can read the other's file system with the contraction of the system with the contraction of the system with the contraction.

File Format: Moss store files differently from PCs. For example, some Macintosh applications generate files with two parts a resource fork and a data fork. The data fork cortains pretty much what you'd expect—data: the information you in put into the file. The resource fork can contain all softs of tibults, such as what application created the file and when, peripheral information about the file. Again, without special software, PCs can't long Macintosh files, and wice versa.

### Help Buying SMARTER: Broadcasting Documents Is Simple and Elegant

A SOLUTION FOR SHARING

### **Acrobat Jumps through Hoops**

t one time, sharing a document meant reaching for a piece of carbon paper and pressing harder on the keys as you typed. Over the years, the technology of producing and distributing documents has advanced radically. Most documents now begin their lives electronically. Yet, as inexorably as salmon swimming upstream, those documents

still manage to make their way to paper. The most compelling reason may be

appearance; increasingly, a document's format—its layout, fonts, graphics, and color—is as much a part of the information to be conveyed as the words themselves.

But while printing preserves a document's appearance, it also compromises the accessibility of the information it contains: No matter how powerful your desktop computer, it can't search for keywords through a stack of printed documents.

Of course, electronic document exchange is no walk in the park, either, thanks to differences between types of computers such as PCs and Macs, operating systems, applications software, printers, and installed fonts.

Searching for Solutions The problem of exchanging documents among different types of computers, or brands of software on the same computer, is not new. The traditional low-tech approach—convering it to an ASCII text file—gains you accessibility, but at the cost of appearance.

A scanner and an optical character

recognition (OCR) program turns hard copy into an electronic text file that can be searched and edited, but you lose all graphics and other formatting.

Å better solution lets users distribute illy-formatted documents across different platforms for their colleagues to view and annotate. Several such products have recently surfaced, including No Hands Software's Common Ground, WordPerfect Ernovy, and Farallion's Replica. The leading example of this electronic document multishint rectnology is Adobe Acrobat.

Acrobat's Allure Adobe Acrobat is agroup of applications that segments the publishing process into two discrete steps: creation and viewing. It allows published documents to be distributed, viewed, and printed without requiring the recipient to have the applications or hardware with which the document was created. The recipient sees an onscreee representation of the document, including the text, fonts, page layout, and graphics, exactly as it will appear on

paper—kind of like an electronic photocopy.

The basic Adobe Acrobat package contains everything you'll need to creare, use, and distribute documents. The process it uses is simple. To bridge the gap between incompatible systems, Acrobat defines an intermediate file format called the portable document format (PDF), which can be written or read by any type of computer. Document creation begins with the Acrobat PDF Writer, a device driver that your application uses to print your documents to disk as PDFs. PDF Writer is available for Windows and Macintosh systems.

The Acrobat Reader program, in DOS, Macintosh, Unix, and Windows versions, lets you view and print PDF documents. The Reader program may be distributed free with PDF documents, and lets users read all annotations, bookmarks, and links that are part of the PDF file. However, the Reader doesn't let you alter the document. To do that, you would use the Acrobat Exchange program. Exchange isn't an editor, but it does let you annotate a document with pop-up notes. You can also build in bookmarks for quick navigation through the document.

The PDF Writer system works for most business applications, with limitations. Documents that contain high-resolution scanned images, encapsulated PostScript (EPS) images, blends, gradient fills, or other PostScript-specific features are normally sent to PostScript printers, and don't survive

How to Choose: People who only need to read and edit text may not care about layout. You can probably get by with ASCII conversion or cross-platform applications. Data hounds may prefer to scan in text that can be searched and indexed. Anyone reviewing layout as well as content will want portable of accument software.



### The Acrobat Solution

You need to send fully formatted. font- and graphics-rich documents to a whole workgroup-DOS, Mac. Unix, and Windows machines. Acrobat's portable document format (PDF) does it all-and adds file compression and security too.

> 1. Once your document is ready to distribute, you convert it to an Acrobat PDF file using your application's Print command and Acrobat's print driver. The driver creates a file containing the size, location, and attributes of all elements in your document. Each element---text, font, or graphic—is an object that Acrobat handles differently.

2. Acrobat compresses the text in your document using LZW encoding, and stores it as a separate object, If you select password protection, the text is encrypted too.

3. Acrobat stores font information in one of two ways. To retain the spacing, size, location, and color of every Multiple Master font technology to imitate a font or, it embeds part of the font to reproduce it.



Pro: The document appears onscreen exactive as it will when printed. Con: Not designed for group editing of files.

5. Using Acrobat Reader, you can browse. zoom, print, and annotate PDF files. Readers for DOS, Mac. Unix, and Windows contain loadable versions of Adobe Type

### The PC-Mac Solution: Conversions Plus

The most direct way to exchange files between different apps on different platforms is to use a conversion program such as DataViz's Conversions Plus, Such apps handle many file and disk formats. Here's how a file makes its way from a Mac floppy to a PC.

> 1. The first stage in a document conversion is to read the floppy disk. The conversion software needs to figure out whether the disk you just inserted is in Macintosh or PC format, so it reads the beginning sectors and checks to see if they're formatted as the Mac or FAT file system. If it's a FAT disk, control for reading the disk is passed to DOS. If it's a Mac disk, the program reads the binary tree off the disk to find out what files are on it, and displays a list of them.

4. Once the conversion software has read the file and converted it into this intermediate format, it applies a file output filter. The software looks in its output filter library to see how to map the data and formatting information from the intermediate file type into the second file type then writes the file to disk using that format. This lets you read the file in your target application.



Con- Conversion sten takes time

2. You select a file you want converted and tell the software what format you want it converted into. The software copies the file, sector by sector, off the Mac disk and writes it to a temporary directory on the PC. This effectively converts the file from the Mac file system format into the PC's FAT.

3. The software uses an input filter to read the file and translate it into an intermediate format. The software understands what's in the file because it keeps a library of file input filterswhere they store data and formatting information.

BY MATTHEW LAKE AND JOHN MONTGOMERY

well in the translation through PDF Writer. Acrobat Pro includes everything in Acrobat, plus the Acrobat Distiller program, designed specifically to convert PostScript language files into PDFs, Distiller is run on the same system that creates the document, where it accesses all the fonts and resources used by the document to successfully create the PDF file. Distiller offers a lossless compression option for text and outline graphics. To reduce storage requirements, complex graphics such as scanned images can be compressed further by using one of several techniques, including a procedure called downsampling, as well as JPEG (for 16- and 24-bit color images) and LZW (for lowresolution color and grayscale images).

Acrobat for Workgroups includes Distiller, a ten-user license for Acrobat, and the Acrobat Catalog software. The Acrobat Catalog program creates live full-text indexes for groups of PDF documents. When combined with Acrobat Search (distributed in all variations of Acrobat), hundreds or thousands of documents can be searched with a single command. All Acrobat versions include Adobe's

Type Manager software, Multiple Master font technology, and 14 Adobe Type 1 fonts. Although documentation is included in each package, the manuals are provided as PDF files, not hard copy.

Inside Acrobat Acrobat converts a document into a PDF file in one of two ways. For Windows or Macintosh systems, the PDF Writer doctor driver is the logical choice. PDF Writer doctor it require that you first create a PostScript file from your document, then convert it. Instead, it works from within your current application by masquerading as a printer, and captures the instructions that the application would normally send to the printer.

The captured printer instructions are translated from their native format into the PDF language. If that fails, for whatever reason, Distiller can translate a Post-Script language document directly into a PDF file without the pretense of printing.

The PDF language is the enabling technology for Acrobat's document handling. Open a PDF file in your text editor and you'll see lines of commands, front information, and blocks of text, much as you'd find in a PostScript file. PDF's resemblance to a PostScript file is no coincidence. PDF is based on Adobe's PostScript and inherits much of its platform- and resolution-independence. PDF also adds several extensions that support random access, hyperrext links, text search, and annotation.

When you view the document, Acrobat interprets the PDF file, using the information provided to closely match the original document's appearance. If the fonts used to create a PDF are installed on the target system, the Exchange and Reader programs use those exact fonts to display the PDF file. If not, Acrobat creates look-alike substitute fonts. Although not exact duplicates, they represent close simulations based on the metrics of the missing fonts. These substitute fonts are also used when you print the document.

In some cases, you may want to embed the actual fonts in the PDF document. For example, in the case of a symbolic or custom font, this is the only way to ensure that the original document can be reproduced on the target system. Embedding is also an option for any TrueType or Type I font. The resulting file can be sent to any other Acrobatequipped computer.

Of course, Acrobat hasn't conquered every potential document problem you'll encounter. An 8.5-by-11-inch page, for example, simply can't be displayed legibly on a standard 14-inch monitor.

Complete document portability is a myth. But in many cases it's also unnecessary. Acrobat's platform-independence makes it easy and inexpensive to create and broadcast complex documents. It also opens the way for on-demand publishing, warehoused document banks, and archival storage. PDF files maintain a document's appearance without compromising its value as pure information. PDF files are easy to amnotate and search, and provide a good basis for work-in-progress editing.

Acrobat seems to have struck that tenuous balance between power and easeof-use. ROBERT L. HUMMEL

ROBERT L. HUMMEL advises extreme care when sharing files with colleagues.

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### Reap the Rewards of Easy File Sharing

Oortable document software won't get you a van Gogh on your screen. But when you want to share files that include even unsophisticated formatting, and the person you want to share with has different software or is on a different platform altogether, it can serve well. And it's easy to build a business case for portable documents. In the

articles preceding this column (see pages 218 and 220) we discussed three ways to exchange documents across platforms:

First, converting the original document to simple ASCII text is an inexpensive little software conversion tool, a communications package, a modem, and an electronic mail service such as CompuServe. Unfortunately, ASCII file conversion is useless for most business applications.

The second method—scanning and optical character recognition-is labor intensive, slow, and prone to human screwups. However, you can equip yourself with an inexpensive laser or ink jet printer, a scanner, and OCR software for less than \$1,500.

The third solution? Use portable document software (PDS) to translate files into the format of the receiving computer. Candidates are Adobe's Acrobat, No Hands Software's Common Ground, Farallon Computing's Replica, and WordPerfect Envoy. This alternative is the best one available today. The cost is palatable-less than \$1,000 to equip you and a recipient with the proper software-and offers a substantial and continuing return on investment.

The Check Is Not in the Mail Portable document success stories are easy to find among companies in insurance, financial services, and publishing. Insurance companies use it to cut down on forms inventories and mailing costs, and to provide quicker responses to customers. Easier document distribution means less overhead. (Witness my father, who is an insurance agent. After 30 years of hugging paper, PDS drives him crazy. PDS is reengineering him into retirement.)

Financial services use PDS to deliver timely and comprehensive information to clients. Newspapers use PDS to take print advertisements from customers.

The advertising industry is also ripe for PDS. Buck & Pulleyn, Eastman Kodak's ad firm, cut costs by 30 percent and production time by 50 percent using Adobe Acrobat. (See "Site Analysis," page 218.)

Closer to home, I have a special need for PDS. I'm working on a project that will tap PDS's ability for full-text indexing and retrieval. My company has more than 100 application manuals. They're printed on paper and distributed to remote sites. This tree assassination costs several hundred thousand dollars annually.

The documents are created and maintained on a variety of hardware. And, of course, each application group uses different software. It's possible to turn these

isolated manuals into PDS documents and create a CD-ROM collection. So what?

First, it ends the paper chase, which my users hate. It creates the ability to index and electronically retrieve information. Most important, the PDS format provides a workable way to update thousands of pages of text and graphics without scanning and editing them by hand. We save time, which saves money, and paves the way for new work opportunities.

Big Payoff Tandem Computers uses a customized version of Acrobat to create CD-ROMs with catalogs, fact sheets, white papers, and presentation materials. Creating, editing, maintaining, and distributing paper documents would have cost them millions of dollars. They figure the PDS/Acrobat/CD-ROM combination costs one-tenth of that,

In the long run, portable document software improves communication among people so they can produce better widgets. That's the key to using PDS and that's the key to justifying it. MARC DODGE

MARC DODGE, a telecom department manager, is looking forward to completely integrated cross-platform file sharing.



of these technologies is a good solution for a specific problem, but portable document software (PDS) wins on increased



The commuter lane. And now, XTreeGold" for Windows. All created

by people who'd had enough.

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Excel v5, and other popular applications. And File Companions, a separate program that provides file management from within Windows applications.



What's more, new XTreeGold is Chicago-ready. It supports long filenames, so when you upgrade Windows you can take your favorite file manager with you.

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### **INSIDE** Ethernet Cards

### Good Ol' Ethernet Token Ring may have out-

lived its usefulness. For all your network bottlenecks, look no further than Ethernet network interface cards (NICs). One size does not



fit all, though, so John Montgomery discusses everything you need to take into consideration, including buses, wires, duplexing, viruses, software drivers, and more.

Spec Watch Before your next hardware investment, check out our recommended specs-

Network Servers.....230 Disk Drives Scanners.... Windows Displays....232 Accelerators.... Sound Cards.....

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### Direct to You spec watch: Don't Settle for Less than These Specs

COMPATIBILITY, SPEED, AND AFFORDABILITY

### **Ethernet Cards:** A Plumber's Helper

Tetworks are like your household plumbing: Unglamorous but necessary. And just as the quality of fixtures you choose for your bathroom affects how well it works, the quality of your Ethernet cards affects your network's performance. Before you buy a new Ethernet card, you'll need to answer some basic questions. What bus do you

want to plug it in to? If your system has only one, the choice is easy, but if you have one of the newer systems that has a main bus and a local bus (like PCI), things get complicated. Even at its full-rated 10Mbps (about 1.25MB per second), one Ethernet card can't flood even an ISA bus, with a maximum rate of 5MBps, So, as a general rule, you can keep one Ethernet card in your system's slowest bus without worrying about swamping it, If, however, you have an ISA/PCI system and you want multiple Ethernet cards in it, it's a

good idea to choose the PCI variant to take advantage of that bus's higher bandwidth.

Now you need to determine what kind of wire your network uses. Most common these days is 10Base-T, an unshielded twisted-pair wiring scheme that uses RI45 connectors. Also common is 10Base2. a.k.a. Thick Ethernet, Finally there's Thin Ethernet or 10Base5, Ideally, your card should have the connector type for your network and one other, preferably 10Base2, which is a lingua franca for Ethernet wire.

DECISION MAKER

Make sure the card comes with the appropriate drivers for the network you're going to put it on. For example, if it's going into a NetWare 3.12 server, make sure it comes with NetWare 3.12 server drivers.

Here are some optional add-ons to make Ethernet cards work better: a programmable BIOS that includes drivers and virus scanning software (having a network full of programmable BIOS cards makes upgrading them automatic); LEDs that show transmission and receipt of network packets and network errors; and simple network management protocol (SNMP) support.

Finally, look for full-duplex support. There are four wires in a 10Base-T cable. but the card uses only two at a time. If you have a full-duplex Ethernet card and a fullduplex Ethernet hub, you can use all four at once. You'll get higher performance with this setup, but it will cost you around \$75 more per card. JOHN MONTGOMERY

### ETHERNET CARDS

PICK THE ONE THAT SERVES YOUR NETWORK NEEDS

20 Nodes



- 1. Software: Diagnostic
- 2. PROM: Flash upgradable. 3. Configuration: Through
- software (no jumpers or 4. Virus Protection: Integrated
- 5. LEOs: Transmission and
- 1. Drivers: NE2000-compatible. 2. Network Management:
- SNMP support.
- 3. Bus Mastering: Yes 4. Extra: Full-Duplex Ethernet
- support. 5. Cache/Buffer: 16K or larger.
- Bus Support: PCI, VL, or EISA. 7. OS Support: NetWare.
- Windows NT, Windows for Workgroups, and OS/2.

### 2 What will you 3 This is a minimum What's mon Look for these features... Usability: 1, 2, 3, 4 File 16-hit Features: 1, 2, 7 Workstation Usability: 1, 2, 3, 4 Annlication 16-hit Bus Services Mastering Features: 1, 2, 5, 7 Usability: 1.245 16-bit Bus Mastering File Server Usability: 1 2/3/5 More than 32-bit Bus

### Direct to YOU SPEC WATCH: Don't Settle for Less than These Specs

# NETWORK SERVERS

Jasama)

THE PENTIUM IS STANDARD EQUIPMENT FOR MOST SERVERS



USABILITY

1. BIDS: Flash for easy upgrades. Enclosure-Tool-free removal

3. CPU Socket: 7IF. 4. SIMMs: Easily accessible.

5. Drive Bays: Easily accessible.

FEATURES 1. CPU Cache: Expandable to 1MB.

2. Upgrade Potential: Pentium

upgradable. 3. Interface: Wide SCSI-2. 20 or

4. RAID: Level 3 or 5 5. RAM: Expandable to 128MB. 6. Bus Slots: Eight EISA with

two VL or PCI. 7. Internal Bays: Two full-height 5%-inch.

B. External Bays: Two half-height 5%-inch with front-panel access.

9. Backup: DAT. 1D. Network Card: One 16-bit.

11. Network Cards: Two 16-bit. 12. Protection: UPS.

DECISION MAKER

How big is your network? 3 This is a minimu configuration: SSMH2 48SBY2 File Storage 16MR of RAM 168 Hard Disk

Fewer Clients Application

Services **168 Hard Disk** 60MHz Pentium

File Storage 32MB of RAM. 26R Hard Disk

60MHz Pentium

16MB of RAM.

64MB of RAM, Application Services

Usability: 1, 2, 3, 4, 5 Features: 2 5.6.7.9. Usability: 1, 2, 3, 4, 5

Look for these features

Features: 1, 3, 4, 5, 6, 7, 9, 10, 12

Usability: 1, 2, 3, 4, 5 Features: 1, 3 4 5 6 7

Usability: 1-7-5, 4, 5 Susturas | 1 a 1.7 a

### DISK DRIVES

CHOOSE SCSI FOR YOUR HIGH-END NEEDS

Desktop

Network

Server

21 nr

More

Clients



### USABILITY

1. Documentation: Includes a clear jumper-setting diagram.

- 2. Diagnostic Software: Included.
- 3. Partitioning Software: Included. 4. Power Management:
- Included. **FEATURES**

1. Cache or Buffer: 256K or larger.

- 2. Access Time: 13ms or faster (if measured as seek time, 10ms or faster). 3. Interface: Enhanced IDE.
  - 4. Interface: Wide or Fast
  - 5. Warranty: Three years, all parts and labor.
  - 6. Warranty: Five years, all parts and labor.
  - 7. Extra: RAID-capable

### DECISION MAKER

Windows

Windows NT

28 or Fewer

& DS/2

3 This is a minimum configuration:

340MB IDE

Features: 2, 3, 5

Usability: 1, 2, 4 500MB SCSI-2 Features: 1, 2, 4, 6

1GB SCSI-2

Workstation More than 20 Workstations

ZGB SCS1-2

Usability: 1,2,1,4

Look for these features Usability: 1, 4

Usability: 1,2,3,4

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200 51 PS/2 90 XP, 95 XP, P75 (pairs), 56, 57 (all), PS/1 Consultant, Essential, Expert models x11, x13, x14, PS/1 Pra M2123

Expension boards for 50, 50Z, 55SX, 60, 65SX 2 8MS v/2MS 1497259 NEC

16M8 8/A PowerHate 286/12; SX/16, SX/20 268 for 0P-410-8103 PawerHate SX/20 288 CPU Upprobs 0P-410-8100 288 Eus Road

7-Server 42555 43365 45006

Zenith Z-386/20; 25; 33, 33E

Zonifi Z-3865X/20, 286LP+, Z-LS

Image 425, 433, 466

Seedy 425, 433

6450128 . . .

410-12003

Zenith

PS/1 Consoltent, Essential, Expert models x76 1688 for 9679291

\$180 \$330 ||EW| Z-Mahe 425 Series Z-Spert 4265, 4255 Mastles/Fert 3845X, Mastles/Fert 3845X ||EW| Z-Ster \$275

Premine
603 56119-001 5159 888 50119-007 5349
forms J/S2719-004 5159 888 50119-007 5349
forms J/S2719-004 598 888 50828-007 5362
704 50912-01 704 508 50855-007 5374
formstope 28452/3-5, Subvariaged Part S27, Subvariaged Part S2718
70912-00912 Total (1986) (1987) (1987) (1987) (1988) (19

IRAA

NEC

ining 40.f & 50.f models).

Texas Instruments

ITE 18x 4 /95

MEN ThinkPad 710T

NEW PS/2 CL575X and ThinkPad 700 700c, 720, 720c, 755

L405X, N335X, P5/Nete 182 L405X, P5/Nete 182

MS1 Metobook (AR)

NFW Ultrelite Verse (of models)

Ultrelity III, SL/25C

UltraLite SL/20, SL/20P

PreSpeed 286, 3865X / 16

Premium 4/25; 3378, Server SE 4/33 2018 S00718-004, 700.005 S64-material 446/25; 33, 319; S510, Pracer Premium 3/23, 4/32; 352; 504, Premium 36/231, 466/35; 33, 486/32/ 33, 335; 33TE, Premium 1846/25; 33, 486/33, 486/32/ 4MI 500780-004 S188 BMB 500780-001 : 5339 Compaq

Prolines 3/25s; 3/25ss SMB 14738-001 S86 NEW Prelines 4/25s, 4/33, 4/50 IMB 141887-001 St2 EMB 141742-001 ... 5308 141683-001 ... SBI 141685-001 \$346 682-001 \_\_\_ S42 2MB 684-001 \$174 EMS DeskPre 386-26, 25 4MB 112132 001 S190 4MB 113645 001 S239

4MB [17534-00] 5100 4MB [12634-01] 529 DesiPre 3/755; 334,4/256; 332; 441, 2868; 2868; 3865X/20 20N, 5ystemPre IT Series, Perinble 4R6c, M Series | Perhildr ARC, M Sense | S79 | S18 | T1887 001 | T28 | T1897 001 | T28 | T1897 001 | S346 | T1897 001 | S348 | T1897 001 | S448 | T1897 001 | S44

Dell Power Ossistop 3250; P. 3330, 333P, 433P, 446P, 4860 488: 310 2507 S17 Powerfilm Workstefan 470; 475; 433, 450, 4500E/2, 4660E 388: 315-2466 S79 Bat 316-246 

32M8 Ed June 1 Performance T, L, & M. series 900 2015 S174 16M8 310-3317 **Hewlett-Packard** Vectru QS/165; 20PC, RS/20; 20C; 25, 25C 468 Kr 01515 ar 16426. Vectru 386/16N, 386/20N, 386/25H PC

298 024064 SSS DIRE 024064 SSS Vector 486PC; 257; 337; 4865/20; 4/259; 339; 509; 649 988 02314 SSB DIR 021524 SSB 708 02314 SSB DIR 021524 SSB 708 02314 SSB DIR 021524 SSB 708 02314 SSB DIR 021524 SSB Vectro 386 / 3306, 3300 268 027144 SV8 8M8 02715A 5300

589

5346

\$619

. 5679

### Direct to YOU SPEC WATCH: Don't Settle for Less than These Specs

3. Interface: Parallel port. 4 Interface- PC Card

6. Adapter: Transparency.

Software: OCR bundle.

8 Interface- SCSI or SCSI-2 9. Image: Black-and-white.

5. Oocument Feeder:

10. Image: 24-bit color (256 shades).

(256 shades).

11. Image: 24-bit grayscale

12. Other: TWAIN compliant.

Automatic.

# **SCANNERS**

### COLOR OR GRAYSCALE, LOOK FOR TWAIN COMPLIANCE



### 2 Primary activity?



Look for these features Usability: 1,3

Hand-held or Single-page. 200 doi

Features: 3, 4, 7, 9, 12

Usability: 2, 3

Flathed, 300 doi:

Features: 5, 7, 8, 11, 12

Simple Flatbed, 400 dpi Graphics

Usability: 2, 4 Features: | A & & |

Usability: 2, 4

Peatures: 1 1 a 8 111

Graphics Flatbed, 600 dpi Photos

Snippets

Multiple

Pages

1. Controls: Color calibration.

USABILITY

1. Image Merging: Automatic.

3. Software: For TSR monitoring.

contrast and brightness.

automatic for balance

2. Image Straightening: Automatic.

4. Controls: Manual for

and tonality.

2. Software: 24-bit

editing software.

FEATURES

### WINDOWS DISPLAYS

### SELECT THE RIGHT SIZE FOR YOUR APPLICATIONS



### USABILITY 1. Controls: Front panel or

- onscreen digital. 2. Power Management: EPA
- Energy Star. 3. Base: Adjustable tilt
- and swivel. 4. Input: Multiple input
- sources 5. Settings: Saved for different resolutions.

### **FEATURES**

- 1. Emissions: MPR II. 2. Tube: Flat-square
- 3. Controls: Microprocessor
- 4. Controls: Color. 5. Coating: Antiglare. 6. Vertical Refresh: At
- least 72Hz 7. Vertical Refresh: At
- least 76Hz 8. Vertical Refresh: At least 84Hz

### DECISION MAKER

Numbers

What's more important? 2 Primary activity? Word & F-mail Text &

Processing

Spreadsheets & Databases

3 This is a minimum configuration:

Resolution,

Look for these features.

Usability: 1, 2, 3, 5 800-by-600-pixel Features: 1, 2, 3, 5, 6 0.28mm Oot Pitch

17-inch. Usability: 1, 2, 3, 4, 5 1,024-by-768-pixel Resolution. Features: 1, 2, 3, 5, 6 0.28mm Oot Pitch

Graphics, Design & Multimedia

CAO or Page Layout 21-inch, 1,280-by 1,024-pixel Resolution. 0.31mm Oot Pitch

21-inch, 1,600-by 1,280-pixel Resolution.

Usability: 1, 2, 3, 4, 5 Features: 1.7.1.4.5

Usability: 1, 2, 3, 4, 5

No Slots, No Boards, No Switches, No Tools...

### TAPE BACK-UP MADE EASY,

It Works, We Guarantee It!\*

Thinking about Trakker? ...Think again!





- 250MB Tape Back-Up
- 2.7" tall

- 1 year warranty No support for EPP





- 250MB Tape Back-Up
  - 1.7" tall
  - 2 vear warranty
    - Supports EPP (enhanced parallel port)
    - A full line of storage products

### and there's more to MOBILSTOR

-	Tape Back-Up	250MB	\$229°5
-	HardDrive w/battery	340MB	\$399°5
	HardDrive w/battery	520MB	\$599 <sup>95</sup>
	SyQuest Removable	270MB	⁵599 <sup>%</sup>
	CD ROM Double Speed		\$70095

MobilStor expands any desktop or portable PC by simply plugging into the parallel port, and MobilStor goes anywhere in our rugged prize-winning case. Save by buying direct from the manufacturer! Our decade of experience, and award-winning technical support is just a toll-free call away.

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### **Plug and play** Here today!

Circle 230 on reader service card. CALL TODAY OR TONIGHT









Experience Required!

### WINDOWS ACCELERATORS

GET YOURSELF A VESA OR PCI BUS CARD



### USABILITY

- 1. Software: For changing esolutions and colors. 2. Software: For driver
- 3. Extra: Virtual desktop
- support. 4. Jumpers and Switches: None

### **FEATURES** 1. Orivers: Windows 3.1.

- 2. Memory: Expandable to 2MB 3. Memory: Expandable to 4MB.
- 4. Memory: Expandable to 6MB

- 5. Vertical Refresh: 72Hz or higher at all resolutions.
- 6. Number of Colors: 64.000. 7. Number of Colors: 16.7
- million (true color) 8. Feature Connector: VESA advanced feature connector
- (VAFC) or VESA media channel (VMC) feature connector
- 10. Resolution: 1,600-by-1,280 pixels at 16.7 million colors.
- 9. 3-D Support: OpenGL.
- 11. DRAM: 2MB minimum. 12. VRAM: 4MB minimum

### DECISION MAKER

Text & Numbers

Graphics

Processing

Spreadsheets

& Databases

Ogaign &

CAO or

Image

Friting

Multimedia

& F-mail

This is a minimum configuration: Word B00-by-600-

> Divel Peralution At 256 Colors

Usability: 1, 2, 4 Features: 1, 2, 5

4 Look for these fear

Usability: 1, 2, 3, 4 1,024-by-768-Pixel Resolution At 256 Colors

Features: 1, 3, 5, 6, 11

1.024-hy-768-Pixel Resolution. 64-hit Accelerate 1.280-by-1.024-

Pixel Resolution.

84-hit Accelerate

Usability: 1, 2, 4 Eganings, 1.8 5.5.

Usability: 1, 2, 3, 4 Features: 1 4 5 1 4

### **SOUND CARDS**

LOOK FOR 16-BIT QUALITY AND SOUND BLASTER COMPATIBILITY

What will you use it for?

Multimedia &

Presentations



### USABILITY 1. Digital Signal Processor:

- Programmable 2. Configuration: Through
- software. 3. Diagnostic Software: DOS
- and Windows. 4. Software: Text to speech.
- 5. Software: Command control. 6. Software: Canable of playing audio CDs.

- 1. Voices: 16 simultaneous.

- 2. Speaker: Stereo 3. Output Generation: Wave-
- table, or FM synthesis with
- wave-table option 4. Sampling Rate: 44.1kHz. 5. Ports: Microphone and
- joystick. 6. CO-ROM Interface: SCSI.
- 7. MPC Level: 2. 8. Input: Microphone.
- 9. CO: Audio input and output. 10. MIDI Support: 24 simultaneous voices

MIDI

Playback 2 200 Windows Sound

DECISION MAKER

Sound Blaster Compatible

16-bit.

Sound Blaster

Compatible

3 This is a minim

Look for

Usability: 2, 3, 6

Features: 1, 2, 3, 4, 5, 6, 7

Usability: 1, 2, 3, 4, 5, 6 Features: 1, 2, 4, 5, 6, 7 Usability: | 2. 8 4. 5, %

Playback

16-bit. Sound Blaster Comnatible

Teatures: 1 7 1 5 0 1

Usability: 1, 2, 3, 4, 5, 6

Features: 45618

bued mov

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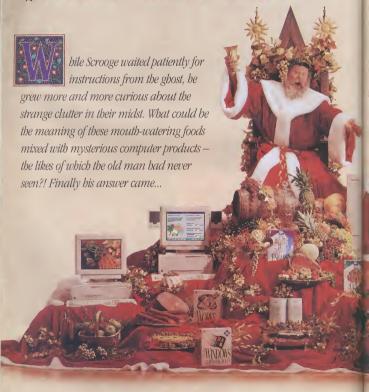
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# # Only # MidWest Micro Could Alter Strooge's Fate...



### The Chost of Computers Present—and Future



"I was sent to deliver the Present and Future of computer technology," the ghost bellowed. "These Intel-based Elite Systems which surround us have captured the extraordinary powers of PCI and Pentium". It is now up to you, Ebenezer, to release them."

The spirit's thundering voice sent chills up Scrooge's brittle spine.

"Please, wise spirit, have mercy upon me. Tell me more about these 'Elites,' and what L a mere mortal, must do to belo your cause."

"Many of these fine Elite Systems contain a powerful Intel® Pentium Processor," explained the ghost, "capable of 60, 66, 75, 90 or 100 MHz speeds."

Scrooge never dreamed anything could move so quickly.

"While others," he continued, "rely on formidable 486 processors and advanced PCI Local Bus architecture for their impressive performance. The spirit now turned to the system closest to him, a P5-90 Home PC and with a single touch, brough its 15" monitor to life.

"Fear not, Scrooge," said the ghost. "Touch the key of your choice, and we shall begin."

Scrooge's trembling index finger came to rest on the symhol that was the dollar sign – in an instant the screen erupted into a multimedia frenzy. Without leaving the room, he saw himself walking about the streets of London – peering into the lives of those less fortunate. He could almost feed the cold air biting his bare feet, smell the aroma of a Christmass goose cooking. He even heard a chord of small children singing.

"Where do these angelic voices come from, spirit?" he asked.

"Altec Lansing Stereo Speakers," said the ghost.

The spirit then explained that it was the combination of a Pentium Processor, superscalar architecture and advanced PGI Local Bus technology that allowed this Elite to access peripherals with such haste.

When the adventure was over the ghost turned off the system and looked down earnestly upon Scrooze.

"These people you have just witnessed, hunger desperately for power. Without an Intel-based Elite System in their lives, I shudder to think what may become of them. You must tell them of Pentium and PCI — of MidWest Micro's affordable PCI, Home PC and Pentium Processor Based Systems!"

"You have my word," promised Scrooge.

"And you, Scrooge, do you hunger as well?"

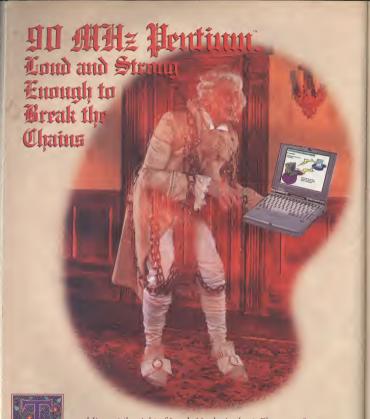
"Yes, spirit. I too could benefit from the power of an Elite."

"No," said the ghost, "I mean are you bungry? I fear I cannot eat all this food without help."

And since Scrooge did not expect another spirit until the bells tolled one, he seated himself with the ghost among the awe-inspiring Elites—and thus began to feast.







rembling at the sight of Jacob Marley's ghost, Ebenezer Scrooge still managed to utter one more "Bah Humbug!" Perhaps it was just a bad chestnut or bite of plum pudding causing him to hallucinate. As he was pondering this, the vision spoke...

"Poor old Ehenezer," his dead partner moaned. "This is neither a dream nor indigestion. I have come to warn you before it's too late – you see, these chains I bear are those I forget in life. And unless you change your way of computing, this will be your fate as well. Like you, I believed a faster, more versatile machine was the key to prosperity. Unfortunately, his obsession with power kept me chained to my office – day in and day out. In my search for the perfect computer, I encountered only a few desktop systems swift enough to suit me – but alas, they were dreadfully heavy. And the portables? Why, I fear my horse-drawn carriage could run faster."

Scrooge nodded in agreement, for he recognized Marley's plight. "Tell me, Jacob, whatever can I do?" he asked.

"Hold onto your nightcap, Ebenezer – for you will scarcely believe what you are about to witness."

Scrooge looked closely at the object floating above Marley's wrinkled hands.

"Why, it's just another notebook," he said.

"No," shrieked Marley, "this is the Elite SoundBook Plus based on Intel's Pentium" Processor. It's like no other notebook you've ever seen...or heard!"

"And it dares to challenge my full-size computer?" asked Scrooge in amazement.

"Did my words escape you, old man?! The Elite SoundBook Plus has captured the power of *Pentium!* Couple that with its remarkable PCI Local Bus architecture, high-speed synchronous cache and 16-bit serves osund – and this 90 MHz notebook more than 'challenges' your cumbersome computer... it clearly outperforms it!"

"But a portable Pentium?" gasped Scrooge. "A talking 90 MHz notebook?! It's pure humbug I tell you."

Yet Ebenezer prayed this spirit spoke the truth. For an invention such as this would surely double his productivity—and thus free him from his dark and ghoomy office. Marley then summoned the Elite 486 SoundBook with business audio features and an assortment of delightful screens, rapid processors and esercious bard drives to choose from

"Oh thank you, Jacob," cried Scrooge. "Thank you for delivering these remarkable notebooks from heaven's gates to my humble chambers."

"Heaven, indeed!" laughed the ghost. "Elite SoundBooks are found right here on earth — but only at MidWest Micro."

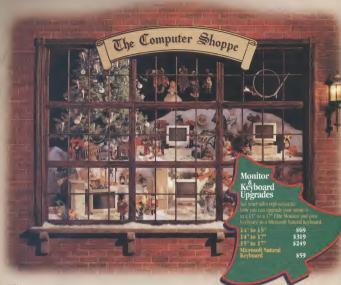
"Then what about the price?" asked Scrooge. "Notebooks such as these surely cost a full year's wages!"

"Wrong again," said Marley. "MidWest Micro knows you don't want to por extra pounds any more than you wish to carry them. That's why they offer these lightweight Elites at prices even your employees can afford." And without another word, the late Jacob Marley was gone...leaving only a puff of snoke and MidWest Micro's toll-free number behind.









### Elite Home PCs

### 3 486DX2-50 \$1499 486DX2-66 \$1899 P5-60 \$2299 P5-90 \$2599 #008651 #008654

### ► Intel486™ DX2-50 Processor

- 4 Mb RAM, 128 Kb Cache
- 428 Mb IDE Hard Drive
- 32-Bit Local Bus Graphics with 1 Mb
- 32-Bit Local Bus IDE

- ➤ Digital Quality Speakers
  ➤ 14.4 S/R Fay Modem
- 14" SVGA .28 N/I Color Monitor
- with Hitachi CRT
- Slimline Case
- 4 ISA & 1 VESA/ISA Slots
- 101-Kev Enhanced Keyboard
- Microsoft Mouse
- MS-DOS® 6.22 and WFW 3.11
- EPA Energy Star Compliant

- ▶ Intel DX2™ 66 Processor 8 Mb RAM, 128 Kb Cache
- ▶ 730 Mb IDE Hard Drive
- 32-Bit Local Bus Graphics with 1 Mb
- 32-Bit Local Bus IDE
- Double Speed CD-ROM Drive ▶ Microsoft Family Bundle - Encarta

- ► Altec Lansing Stereo Speakers
- 3.5" Disk Drive
- 15" SVGA .28 Digital Color Monitor with Hitachi CRT
- Slimline Case 4 ISA & 1 VESA/ISA Slots
- ▶ 101-Key Enhanced Keyboard
- Microsoft Mouse
- ▶ MS-DOS 6.22 and WFW 3.11
- EPA Energy Star Compliant ► The Real 3 Year Warranty

### #008652

- ▶ Intel® 60 MHz Pentium™ Processor 8 Mb RAM, 256 Kb Cache
- ▶ 730 Mb IDE Hard Drive
- ► PCI East IDE Interface
- PCI Local Bus Graphics with 1 Mb ► Double Speed CD-ROM Drive ▶ Microsoft Family Bundle - Encarta,
- ► Altec Lansing Stereo Speakers
- ► 14.4 S/R Fax Modem ▶ 3.5° Disk Drive
- 15" SVGA .28 Digital Color Monitor with Hitachi CRT
- ► 8-Bay Mini-Tower Case ► 4 ISA, 2 PCI & 1 PCI/ISA Slots
- ► Signature 101-Key Enhanced Keyboard Microsoft Mouse
- MS-DOS 6.22 and WFW 3.11 The Real 3 Year Warranty

P5-75

#008691

P5-66 \$2399

\$2499

\*All Systems with a CD-ROM include TestDrive CD Software and Microsoft Home CD Sampler«



► Intel 90 MHz Pentium Processor

ATL MACH 64 PCI Accelerator with 2 Mb

15" SVGA .28 Digital Color Monitor

Signature 101-Key Enhanced Keyboard

8 Mb RAM, 256 Kb Cache

Double Speed CD-ROM Drive

730 Mb IDE Hard Drive

PCI Fast IDE Interface

3.5" Disk Drive

▶ Microsoft Mouse

with Hitachi CRT

8-Bay Mini-Tower Case 4 ISA, 2 PCI & 1 PCI/ISA Slots

MS-DOS 6.22 and WFW 3.11

The Real 3 Year Warranty

#### \$1199 ADX2-50 PCI \$1499 DX2-66 PCI \$1799 DX2-66 PCI \$1999 SX-33 PCI

#008655

▶ Intel486 SX-33 Processor 4 Mb RAM, 128 Kb Cache 428 Mb IDE Hard Drive

PCI Fast IDE Interface ► PGI Local Bus Graphics with 1 Mb 3.5" Disk Drive

14" SVGA .28 N/I Color Monitor with Hitschi CRT ▶ 8-Bay Mini-Tower Case ▶ 3 ISA, 2 PGL & 1 PGI/ISA Slots

Super I/O using 16550 UART & ECP/EPP 101-Nev Enhanced Keyboard High-Resolution Mous MS-DOS 6.22 and WFW 3.11

EPA Energy Star Compliant

DX2-50 PCI \$1299

The Real 3 Year Warrants DX2-66 PCI DX2-66 PCI \$1399 #008659 Elite Pentium™ Processor Based Systems

► IntelDX2 50 Processor ► IntelDX2 66 Processor

4 Mb RAM, 128 Kb Cache 8 Mh RAM 128 Kh Cache 545 Mh IDE Hard Drive 545 Mh IDF Hard Drive PCI Fast IDE Interface PCI Fast IDE Interface PCI Local Bus Graphics with 1 Mb PCI Local Bus Graphics with 1 Mb

3.5" Disk Drive 3.5" Disk Drive 15" SVGA .28 Digital Color Monitor 15° SVGA .28 Digital Color Monitor with Hitachi CRT 8-Bay Minj-Tower Case

8-Bay Mini-Tower Case 3 ISA, 2 PCI & 1 PCI/ISA Slots 3 ISA, 2 PCI & 1 PCI/ISA Slots Super I/O using 16550 UART & ECP/EPP Super I/O using 16550 UART & ECP/EPP 101-Key Enhanced Keyboard Signature 101-Key Enhanced Keyboard High-Resolution Mouse Microsoft Mouse MS-DOS 6.22 and WFW 3.11 MS-DOS 6.22 and WFW 3.11

► EPA Energy Star Compliant ► EPA Energy Star Compliant

► The Real 3 Vege Warrants

► IntelDX2 66 Processor ▶ 8 Mb RAM, 128 Kb Cache

PCI Fast IDE Interface ► Double Speed CD-ROM Drive

▶ 14.4 S/R Fax Modem 3.5" Disk Drive 15" SVGA .28 Digital Color Monitor with Hitachi CRT

► 8-Bay Mini-Tower Case Super I/O using 16550 UART & ECP/EPP Signature 101-Key Enhanced Keyboard Microsoft Mouse

MS-DOS 6.22 and WFW 3.11

EPA Energy Star Compliant

TestDrive

P5-60

#008662

► Intel 60 MHz Pentium<sup>11</sup> Processor 8 Mb RAM, 256 Kb Cache

PGI Local Bus Graphics with 1 Mb

15" SVGA .28 Digital Color Monitor with Hitachi CRT

► 8-Bay Mini-Tower Case 4 ISA 2 PCI & I PCI/ISA Slots

Super I/O using 16550 UART & ECP/EPP Signature 101-Key Enhanced Keyboard Microsoft Mouse MS-DOS 6.22 and WFW 3.11

#008692

\$1999 R P5-75

► Intel 75 MHz Pentium Processor 8 Mb RAM, 256 Kb Cache 545 Mb IDE Hard Drive PCI Fast IDE Interface

15" SVGA .28 Digital Color Monitor

with Hitachi CRT 8-Bay Mini-Tower Case 4 ISA, 2 PCI & 1 PCI/ISA Slots

Super I/O using 16550 UART & ECP/EPP Signature 101-Key Enhanced Keyboard Microsoft Mouse MS-DOS 6.22 and WFW 3.11

\$2399 P5-90 #008664

▶ Intel 90 MHz Pentium Processor 8 Mb RAM, 256 Kb Cache 545 Mb IDE Hard Drive

PCI Fast IDE Interface ATI MACH 64 PCJ Accelerator with 2 Mb

3.5" Disk Drive 15" SVGA .28 Digital Color Monitor with Hitachi CRT

▶ 8-Bay Mini-Tower Case 4 ISA, 2 PCI & 1 PCI/ISA Slots Super I/O using 16550 UART & ECP/EPP Signature 101-Key Enhanced Keyboard Microsoft Mouse ► MS-DOS 6.22 and WFW 3.11 MS Office Professional, Bookshelf '94

\$2499 TP5-90

#008665 ► Irnel 90 MHz Pentium Processor 730 Mb IDE Hard Drive ▶ PC1 Fast 1DE Interface

\$2999

▶ Double Speed CD-ROM Drive 3.5° Disk Drive

15" SVGA .28 Digital Color Monitor ► 8-Bay Middle-Tower Case 4 ISA, 2 PCI & 1 PCI/ISA Slots

Super I/O using 16550 UART & ECP/EPP Signature 101-Key Enhanced Keyboard Microsoft Mouse MS-DOS 6.22 and WFW 3.11

P5-90

#008666

\$3499 ▶ Intel 90 MHz Pentium Processor 16 Mb RAM, 256 Kb Cache

with 2 Mb VRAM

3.5" Disk Drive

10-Bay Full-Tower Case 4 ISA, 2 PCI & 1 PCI/ISA Slots Super I/O using 16550 UART & ECP/EPP Signature 101-Key Enhanced Keyboard Microsoft Mouse

MS-DOS 6.22 and WFW 3.11

► The Real 3 Year Warranty

F5-100 \$3999

#008603 Intel 100 MHz Pentium Processor 16 Mb RAM, 256 Kb Cache

PCI Fast IDE Interface

10-Bay Full-Tower Case 4 ISA, 2 PCI & 1 PCI/ISA Slots

Super I/O using 16550 UART & ECP/EPP Signature 101-Key Enhanced Keyboard Microsoft Mouse MS-DOS 6.22 and WFW 3.11

MS Office Professional, Bookshelf '94

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- ► PCI Local Bus HDD Controller Windows™ Sound System Compatible) Built-in Stereo Speakers & Microphone
- External tacks for Line In & Line Out 3.5° Built-in Disk Drive User Replaceable Hard Drive
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- High Speed 16550 LART Serial Port ► External VGA & Keyboard/Mouse Port
- ▶ MS-DOS® 6,22 & WFW 3.11 Microsoft® Works for Windows 3.0 & Gold
- ► Weight: 6.8 lbs. ► Carrying Case
- ► One Year Manufacturer's Warranto

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DX2-66 with 520 Mb HDD

DX4-75 with 520 Mb HDD &

DX4-100 with 700 Mb HDD 8

#008072

#008073

#008074

#008075

#008076

8 Mb of RAM

8 Mb of RAM

### Elite SoundBook



- ► Intel-i861<sup>15</sup>, IntelDX2<sup>15</sup> or IntelDX4<sup>25</sup>
- ▶ 4 Mb RAM (expands to 20 Mb) ▶ 9.5" Mono, 10.3" Dual-Scan or
- 9.5" Active-Matrix VGA Display Local Bus Video with 1 Mb Video DRAM
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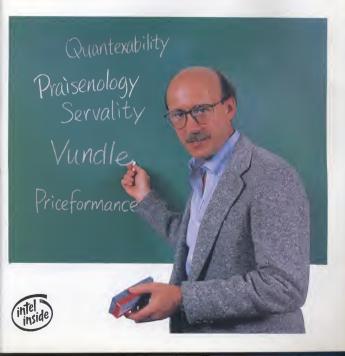


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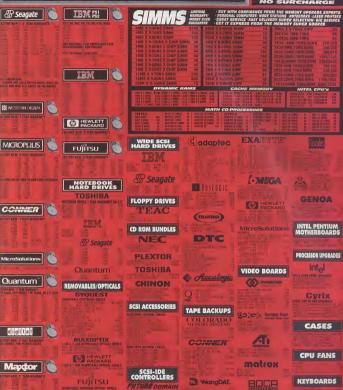


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# Advertiser Index For free information on these advertisements, circle the corresponding reader service number on the reply card on page 297-298.

	READ!	ER PAGE CE NO.		READER	PAGE NO.		READE	R PAGE E NO.
Acer America	110	93-97	Corel Corp.	229	89	NEC Technologies	181	C2-C4,
ADI Systems, Inc.	173	197	Creative Labs	134	311		182	8-9
Adobe Systems	101	17	DacEasy	125	223		183	10-11
Advanced Logic Research	140	13	Dell Computer Corp.	٠	C5-C8	Novell	196	29
AGFA - Compugraphic	168	216	Delphi Internet Services Corp.	239	82	NRI Schools	* :	259-26
America Online, Inc.	٠	169-170	Delrina Technology	167	103	PCs Compleat	146	262-26
American Education			Diamond Computer	107	214		147	264-26
Publishing	161	308	Digital Equipment Corp.	170	122-123	Plextor	266	70
American Power Conversion	116	178-179	Epson	٠	14-15	Plustek, Inc.	138	201
American Small			Everex Systems	228	143	Proxima	177	211
Business Computer	166	268	First Source International	*	231	Quantex		245-24
AMI	*	209	Gateway 2000	*	32-57	Quarterdeck Office Systems	187	173
APS Technologies	230	233	Hewlett Packard		68	Rand McNally	119	183
Arlington Computer Products	160	268		٠	78-79	SAGER	*	274-27
AST Computer	118	22-23	IBM - PC Direct	*	112-113	Samsung Electronics	139	181
AT&T Multimedia	130	105	IBM Personal Software			Sigma	217	175
Autodesk Retail		120	Products		85	Sony Electronics	120	26-2
		187		*	87	Tektronix, Inc	123	98
Automap		114	Insight	103	272	Toshiba	215	164-10
Brother International	131	63		279	273	Touchstone Software Corp.	172	16
Caere Corp		213	Inspiration Software	151	20	Traveling Software, Inc	188	111
		215	Int'l Correspondence Schools		269-271	Twinhead Corp.	159	171
	261	217	Intuit, Inc.		107	UMAX	257	159
Canon Computer Systems, Inc.		118-119			101	US Robotics	102	76
Central Point Software	189	225	Kensington	178	163	USA Flex	202	252
Claris Corporation		145	L.A. Trade		254	ViewSonic	171	148-1
Comp Usa	190	185	Lexmark (Printers)	162	2-3	WordPerfect,		
Compaq Computer	109	156-157	Lotus	*	30-31	The Novell Applications Group		64-6
	273		Megahaus	105	276	Worldwide Technology	251	253
Compuserve		249-251	Micrografx, Inc.	186	177	Xerox Corporation	234	140-1
Computer Associates	252	24	Microhelp	128	207	Zeos Int'l	265	134-1
4Home Productions	122	74	Micron Computer Inc.	150	18-19		282	72-7
Computer Book Club		279-281	Microsoft		58-59	Ziff-Net	*	235
Computer Discount			Microsoft Press	290	21			
Warehouse	143	255	Midwest Micro-Peripherals		236-244			
		256-257	Mitsumi Electronics Corp.	*	91	FYI		
	145		MPC Technology Inc.	232	272	Direct to You Section		227-28
ConnectSoft	169		Nanao	212	109	PC Computing Marketplace		283-36
278	168	117	INGIIGU	212	100	JANU	A P	Y I O



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# **Advertiser Index**

	READER PAGE SERVICE NO		READER PAGE SERVICE NO.		READER PAGE SERVICE NO.
Acer America	110 93-97	Corel Corp.	229 89	NEC Technologies	181 <b>C2-C4,1</b>
ADI Systems, Inc.	173 <b>197</b>	Creative Labs	134 311		182 <b>8-9</b>
Adobe Systems	101 <b>17</b>	DacEasy	125 <b>223</b>		183 10-11
Advanced Logic Research	140 13	Dell Computer Corp.	* C5-C8	Novell	196 <b>29</b>
AGFA - Compugraphic	168 216	Delphi Internet Services Corp.	239 82	NRI Schools	* 259-261
America Online, Inc.	* 169-170	Delrina Technology	167 <b>103</b>	PCs Compleat	146 <b>262-263</b>
American Education		Diamond Computer	107 214		147 <b>264-265</b>
Publishing	161 308	Digital Equipment Corp.	170 <b>122-123</b>	Plextor	266 <b>70</b>
American Power Conversion	116 178-179	Epson	* 14-15	Plustek, Inc.	138 <b>201</b>
American Small		Everex Systems	228 143	Proxima	177 <b>211</b>
Business Computer	166 <b>268</b>	First Source International	* 231	Quantex	* 245-248
AMI	* 209	Gateway 2000	* 32-57	Quarterdeck Office Systems	187 <b>173</b>
APSTechnologies	230 233	Hewlett Packard	* 68	Rand McNally	119 183
Arlington Computer Products	160 268		* 78-79	SAGER	* 274-275
AST Computer	118 22-23	IBM - PC Direct	* 112-113	Samsung Electronics	139 181
AT&T Multimedia	130 105	IBM Personal Software		Sigma	217 <b>175</b>
Autodesk Retail	* 120	Products	* 85	Sony Electronics	120 <b>26-27</b>

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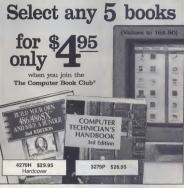
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Index	Premier	Classified		Premier	Classified		Premier	Classified
HARDWARE		1	SOFTWARE			Scientific		301
Boards/Components/Chips	284	292	Accounting	286		Security		301
Communications	284	294	Business Applications	286	296	Utilities	289	
Voice Mail			Communications		299	Adult		302
Computer Systems		295	Education	287	299	Windows	290	301
Input/Output Devices	285	296	Financial	288		SUPPORTING PRO	DDUC1	S
Bar Coding			Graphics/Design	288	300	Accessories		
Mass Storage Devices	286		Multi-Media/CD-ROM	289	300	Digital Output Service	S	301
Midi	286		Music/Midi		300	Disk Duplication		
Networking			Personal	289		Information Resources	3	301
On-Line Services	285	295	Foreign Languages			Services		
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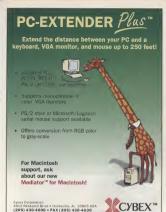
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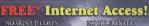
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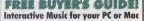
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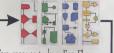
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  lets you sign into another computer on
  the Net and download files.
- BACKBONES High-speed links that connect networks.

- GOPHER A tool that lets you search for files, graphics, WAIS databases (see below), and more using onscreen menus.
- HYPERTEXT MARKUP LANGUAGE
   (HTML) Used for linking hypertext
  documents on the World Wide Web.
- T1 LINES High-bandwidth (1.544Mbps) telephone trunk lines. Many regional backbones use T1 lines and some use faster (44.21Mbps) T3 lines.
- TRANSMISSION CONTROL
  PROTOCOL/INTERNET PROTOCOL
  (TCP/IP) The lingua franca that
  allows computers to exchange
  messages and share resources
  across a network. You're not really
  on the Net without it.
- WIDE AREA INFORMATION SERVER (WAIS) A tool for retrieving documents from full-text databases on the Net a great way to search Net archives.

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"FILE SIZE BEMANDIZION IN SYTES, OWNO, ADOT THIS SHOWN IN INSINITES ECONOME, BASED ON A 969-987 MODENT TRANSFER

#### Package Deals: Windows Coolware Wrapped and Ready

WORLD WIDE WEB
If you're not on the Web,
bere are all the tools you'll
need to enter the Web's
world, including Trumpet
TCPIP and NCSA Mosaic.
PC Contact, data library 3
webpak.zip
1,5MB/40:00

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Don't let your manager
catch you with this
package—includes
solitaire, chess,
backgammon, and more!
PC Contact, data library 3
gamepak.zip
50K/1:28
\*\*\*\*

NetHead Ratings: \*\*\*\*\* Piloting NASA's Endeavor. \*\*\*\* Speeding in a Ferrari.
\*\*\* Riding your bike to the market. \*\* Hitchbiking at night. \* Renting a rickshaw.

#### Insites

JOB HUNTING? Dozens of U.S. employers, including Intel and Union Bank, now publish job listings on Bernard Hodes Advertising's Careenflosaic Web home page. Check out career opportunities, business practices, and even fill Out an e-mail application, (http://www.careermosaic.com/cm/home.html)



1600 PENNSYLVANIA AVE. Bill, Hillary, Chelses, and Socks welcome you to the first-ever White House home page on the Web. Tour their home, scan a map of D.C., and jump to any government info on the Net. There's even a sound file of Socks' meow, onto your way whitehouse, gov)

AIR WARRIOR Work not stressful enough? Sign on to Air Warrior and fly your P51 against other frustrated fighter jocks. The graphics are smooth but minimalist, the experience is consuming, the software is free. GEnie (800) 638-9636 or Delphi (900) 638-9636 or Delphi (900

AMAZING PLASTIC BRICKS Lego lovers: The next best thing to visiting Demmark's Legoland theme park is visiting the Lego home page, Lego, which means "play well" in Danish and "to gather" in Latin, has its own Web site. (http://ego.wwi.tek.nonut.no)

LAW AND ADS Before you start marketing that top-secret widget, consult the Advertising Law Internet Site on the Web (http://www.webcom.com/~lewrose/home.html)

NEITHER CAMELOT NOR PLZA Internet Roundtable is a live weekly "talk show" on the Web, featuring authors, policy makers, cultural luminaries, and original thinkers. Recent quests include David Gerger (political advisor), Susan Stamberg (NPR correspondent), and Frances Morce Lappe cutted to "Total France", June in Wednesday nights at 10 pm. eastern time. "http://www.NEsociety.com"

Contributors: MATTHEW LAKE AND RAPHAEL NEEDLEMAN. I-Way report to share? E-mail NetHead Rich Schwerin at rschweri@pcc.ziff.com.

\*\*\*\*

#### **PC Contact Directions**

PCContact All public-domain programs and utilities featured in PC Computing each month are available on our online service. PC Contact, Current CompuServe or ZiffNet members type GO ZNT:PCCONTACT at any CISI prompt. Cost varies depending on which CompuServe plan you belong to and the speed at which you connect. For complete information, type GO RATES while online.

ZiffNet users pay a monthly membership fee of \$2.95. This support fee provides a variety of free and chargeable services. For the latest information about these services, type GO ZNT:ZIFFHELP and download the files GOWORD.TXT and FREE.TXT

from data library 1 (General Information).

Follow these steps to join ZiffNet and participate in the PC Contact forum:

- Set these modem and software parameters: 7 data bits, even parity. 1 stop bit, full duplex.
- 2 Call CompuServe's sales department at (800) 848-8199 from the United States and Canada. From other countries. dial CompuServe direct at (614) 457-8650. You can also call CompuServe with your modem. Set your modem as instructed above and dial (800) 346-3247. Press Enter when your modern connects. Type PHONES at the HOST NAME prompt, press Enter,

and follow the onscreen prompts access number.

- 3 Dial the access number with a modem. When it connects to the network, press Ctrl-C to get the system's attention.
  - 4 At the HOST NAME prompt, type CIS and press Enter.
- 5 At the USER ID prompt, type 177000.5300 and press Enter.
- 6 At the PASSWORD prompt. type PC/Contact and press Enter.



Sten into My Parlor Visit PC Computing Web Edition. our home page on the World Wide Web, and catch up with the latest features, reviews, columns, and commentary. You can also scan the Radar scope. send us mail, take advantage of exclusive subscription offers, and participate in a monthly Scavenger Hunt, Point your Web browser to the following URL http://www.pccomputing.ziff.com/~pccomp.

> 7 At the ENTER AGREEMENT NUMBER prompt, type PCC95 and press Enter.

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THE DOCTOR IS IN

That's that you feel? An ache creeping into your bones? A hint of the flu? Forget the doctor. He won't be able to fit you into his schedule until two weeks after your funeral. What you need is Dr. CD (he's not a real doctor, but he plays one on PC). Then fill out your prescription for some R and R-all on CD-ROM.



Inside Story: Hey, if you were naked onscreen, you'd look scared too.



Remember your high-school biology book with its clear plastic pages that revealed a dissected frog in layers? Turn one page and the skin disappeared; turn another and . . . well, you remember. A.D.A.M. is that book made better. View the human skeleton, nerves, glands, and other innards, either in predefined views or by peeling away layers. But it's not just for ghouls: A.D.A.M.'s animations and narrations explain the complex functions of the body with gentle humor. For kids, you can install a PG version with strategically placed fig leaves. But wise up: They already know what's what. And by using interior cutaway views, they'll always have access to-you guessed it-a womb with a view.

A.D.A.M. The Inside Story / A.D.A.M. Software / (800) 408-2326, (404) 980-0888 / \$49.95 est. street price / Reader Service No. 761

#### ANNATOMINY O This Windows CD is supposed

to teach kids the same anatomy lessons found in A.D.A.M. Its two characters, Anna and Tommy, shrink to microscopic size and travel through the body in a submarine à la Fantastic Voyage. Unfortunately, you could learn as much by renting the movie. AnnaTommy is crudely animated and exasperating to navigate. Even worse, it makes the fatal assumption that you need to play a game to learn something. Frankly, I didn't care enough to try.

AnnaTommy / IVI Publishing / (800) 432-1332 / \$43.95 est. street price / Reader Service No. 762

#### THE MAGIC SCHOOL BUS EXPLORES THE **HUMAN BODY 00000**

This Windows CD is what AnnaTommy should have been. It's the same idea, only this version is based on the Scholastic book



Field Trip: Simply click on The Magic School Bus's talking lizard for help.

series and popular PBS show The Magic School Bus, and it does a much better job. It has full-screen, full-action animation-not the stiff robots of AnnaTommy, And while it has games to play, you can skip them if you want. Plus, it has endless "clickables," which are objects that do surprising things when you click on them. Click on some odd morsel in the stomach and it turns into what it used to be before it was invested—a hamburger or a cheese puff. This approach really makes learning fun.

The Magic School Bus Explores the Human Body / Microsoft Home / (800) 426-9400, (206) 882-8080 / \$49.95 est. street price / Reader Service No. 763

#### PHARMASSIST 0000

You have to give credit to a CD of drug information that includes a listing for Acapulco Gold. The interface for PharmAssist (say it fast) is a bit awkward, but with some practice you can check for drug interactions, side effects, first-aid advice, what to use for specific ailments, how to deal with drug abuse, and the federal penalties for illegal drugs. There are even illustrations of each pill. Only two complaints: For starters, drug names are classified as brand name or generic; if you don't know which is which, you wind up having to make two searches instead of one. And for some reason, the installation changed the volume setting for my sound card to zero without telling me. That's just stupid. But otherwise this is one smart title.

PharmAssist / SoftKey Int'l. / (800) 377-6567 / \$40 est. street price / Reader Service No. 764



#### COMPLETE GUIDE TO SYMPTOMS, ILLNESS & SURGERY OO

Check me on this: When you go to your doctor, you give your symptoms and the doc tells you what illness you have, right? This Windows CD does a one-eighty:

**00000** A snifter of warm brandy. **0000** A cozy blanket on a winter night. **○○○** A steaming bowl of chicken soup. **○○** Turn your head and cough. **○** Mono.

# CD-RONWhite

You look up the name of a medical problem, and it tells you what the symptoms are. If I could name my illness, I wouldn't need this CD. It's a nice collection of medical information, but the reference to completeness in the title is misleading. I couldn't find anything on my favorite affliction, restless-leg syndrome. If I were sick, this wouldn't be the first medical CD I'd stick in my CD-ROM drive.

Complete Guide to Symptoms, Illness & Surgery / Great Bear Technology / (800) 795-4325 / \$30 est street price / Reader Service No. 764

# DR. SCHUELER'S HOME BUTCH MEDICAL ADVISOR PRO 4.0 0000

A while back I had some fun at the expense of Dr. Schueler's Home Medical Advisor Pro (HMAP) because it couldn't diagnose my obscure hypochondriac ailments. Now, after seeing how poorly several rival products did at this same task-and after seeing Version 4.0 of HMAP, which is packed with more information and a smoother interface-I owe it a higher rating.

Unlike the other CDs here, HMAP makes no distinction between generic and brand-name drugs. And it's more specific in detailing drug interactions. Even more importantly, unlike Complete Guide to Symptoms, Illness & Surgery, HMAP lets you give your symptoms, then it tries to come up with a diagnosis. And if you're not sure what the program means by asking if your skin is flaky or scaly, it shows you photos of the two conditions. (If you're squeamish, you might want to skip the photos and just guess.) Although this CD sometimes comes up blank, human doctors aren't always right either-nor are CD reviewers, for that matter.

Dr. Schueler's Home Medical Advisor Pro 4.0 / Pixel Perfect / (800) 788-2099, (407) 779-0310 / \$60 est. street price / Reader Service No. 766

SELECT PHONE OOOO Want to look up a long-lost love? Or maybe a couple of thousand people you can sell salad spinners to over the phone? Either way, Select Phone will help you get the job done. This collection of five CD-ROMs is billed as a comprehensive business and



Dear John: Select Phone locates the 2.296 John Smiths in the central states.

residential phone book of the complete United States (in Windows, DOS, and Mac formats). Naturally, when you get something like this, the first reaction is instinctive-look up your own name. My ego is still shattered by the fact that I couldn't find my name despite the fact that I've lived in my current home for more than a year. But since 2.5 million phone numbers change weekly, and it takes about six months after a new local phone book appears for new numbers to make it into a quarterly update, that's to be expected. Select Phone gives you a nice interface to look up and sort numbers by name. address, and area code, and it performs searches quickly. There's even a strippeddown version of Map Linx that plots the location of all the phone numbers you find. I just haven't figured out why I'd want to. Select Phone / Pro CD / (617) 631-9200 / \$149 est.

street price with one free update, \$400 per annual subscription / Reader Service No. 767

#### **CAMBIUM SOUND CHOICE VOLS. I-II 000**

Sound clips on CD-ROM are more plentiful than breakin'-heart songs on a honky-tonk jukebox. That's why I don't usually mention them. However, the two volumes in the Cambium Sound Choice collection are a different story.

These two solid samplers of background music are suitable for all kinds of multimedia presentations, from pitching a tropical vacation to threatening the entire sales staff. Lots of CDs have that, but Sound Choice's great Windows interface makes finding the right music track a turkey shoot. A menu describes each selection's tempo and mood, as well as

other characteristics-and you can add your own comments. It gives you complete control for choosing and playing selections, but here's the really neat part: Each music selection comes with a full version and four "bumper" excerpts that you can bring in for quick flourishes without having to edit them. If you want to try out the interface, get Sound Choice Lite for free (with \$5 shipping charge) and check out 20 percent of a full volume's music (the \$5 is refundable if you buy a heavyweight version).

Cambium Sound Choice Vols, I-II / Cambium Development / (800) 231-1779, (914) 472-6246 / \$69 per disc direct, \$123 for both / Reader Service No. 768



#### THE PLAYBOY **INTERVIEW: THREE DECADES 0000**

You get Playboy only because it makes great reading? Sure. That's the same excuse every 15-year-old boy gives his mother for having the magazine ("I bought it to learn more about the philosophy of Buckminster Fuller"). Well, here's your chance to prove it. This Windows CD is a collection of 352 interviews from Playboy. The disc has the full text of all interviews from 1962 to 1992. plus selected sound bites. For all the funyou can poke at Playboy, the interviews offer a significant, wide-ranging look at three decades of popular culture as it was seen by Immy Carter, David Letterman, Miles Davis, Salvador Dali, Lee Iacocca, Robert Frost, and hundreds of others, Yes, there are photos as well, but you won't have to hide them under your mattress.

The Playboy Interview: Three Decades / IBM Multimedia Publishing Studio / (800) 898-8842 / \$40 est, street price / Reader Service No. 769



Just for the Articles: The really interesting stuff in Playboy is all here.

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The Creative OmniCD\* 2x is the leanest, meanest CD\*ROM upgrade in the cosmos. The 2x CD\*ROM makes all your software more exhilarating. And it makes you more productive. With 6 cool software titles, you can dive into multimedia right out of the box. SRP \$259.95



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Of course, all these kits give you 100% Sound Blaster compatibility. And all the technical help you need is just a phone call away. So installation is a no-brainer. Want more information? Just visit your nearest Creative Labs dealer. Or call 1-800-998-5227 Ext. 110.



# **Technolust**

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Big Screen: LiveBoard 3.0 is a huge 486 with a 67-inch high-color LCD Windows display. Write on it with an infrared pen (center right), conference with other LiveBoards via phone lines, and influence people.

LiveBoard 3.0 / LiveWorks / (800) 200-1167 / \$34,900 est. street price / Reader Service No. 776

Take Notes: Mark up your charts with Electronic Marker software and Wacom's ArtPad. With a signal splitter, you can videotape the screen and voice commentary using Presenter Sound 3 hardware and a VCR.

ArtPad / Wacom Technologies / (800) 922-6613 / \$199 est, street price / Reader Service No. 777

Presenter Sound 3 / Consumer Technology Northwest / (800) 356-3983 / S395 est. street price (includes \$149 Electronic Marker software) / Reader Service No. 78

#### Get the Message Out: Reach out and touch

reach out and touch your clients with the SoundStation EX speaker phone (center), and fax visuals in a snap with the CP-100 Casio Board Copy (lower right).

SoundStation EX / Polycom / (408) 526-9000 / \$1,595 est. street price / Reader Service No. 779

CP-100 Casio Board Copy / Casio / (201) 361-5400 / \$799 est, street price / Reader Service No. 780

Take More Notes: Use a multimedia notebook—a TravelMate 4000M (upper left) or MPC CD-Book (lower left)—and take notes on the Contura Aero (right).

TravelMate 4000M / Texas Instruments / (800) 848-3827 / starting at \$5,299 est. street price / Reader Service No. 781

MPC CD-Book / MPC Technologies / (714) 724-9000 / starting at \$2,889 est. street price / Reader Service No. 782

Contura Aero / Compaq / (800) 345-1518 / \$5,999 est. street price / Reader Service No. 783

BY MATTHEW LAKE

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the ones of John C. Dvorak in action. Wait a second. Dvorak?

Yup. And Elvis. And Prince, or the guy who used to be called Prince. And Robin Leach (and his pal Jerry Lewis doing something strange with his tongue). And JFK. Leonardo da Vinci. Monty Python. All there. Along with hot new portables from Toshiba, an exclusive sneak peek at Windows 95, agang of psychopathic punks

who create deadly viruses, and an astonishing side-by-side interactive comparison of color printer output you have to see to believe. Honest.

We're talking, of course, about a pioneering new multimedia product that is creating an enormous buzz in the industry. One that we think sets new standards when it comes to interactivity and ease of use. One that provides distinctly different experiences each time you try it. And one that contains vital business buying information but is downright fun. We're talking, of course, about PCC CDthe groundbreaking electronic version of PC Computing

There's simply nothing else like it out there anywhere.

We see an awful lot of CD-ROM products around the PCC editorial offices. Frankly, most are not worth the polycarbonate they're stamped on. We wanted to do something vastly more valuable, entertaining, and easy to use. We wanted to take real advantage of the interactive

multimedia abilities a CD-ROM can provide. Want some examples?

Interactive Columns We created an interactive multimedia-based expert system for our star columnists. The result? You watch a video clip of John C. Dvorak (or Ed Both) arguing a point about a hot topic. If you agree with him, you click on a button marked "Yes." Disagree (which is nit hard when you're dealing

### Committee | Co

It's Alive! Videos and an interactive multimedia interfacé make this the most fun you can have with your computer on.

with Dvorak), and you click "No." How Dvorak keeps responding is based on how you keep responding. You can even get him so mad that he gives up.

Multimedia CD-ROM Reviews Move over, Siskel and Ebert. Our highly acclaimed critic, CD-RON White not only gives you expert and entertaining critiques you can trust, but shows actual multimedia scenes from the products he's reviewing, from Myst to the Microsoft Art Gallery, Elvis to Prince (4), Lifestyles of the Rich and Famous to Monty Python's Complete Waste of Time, and Jots more.

Interactive Product Coverage Skim the cursor over a long list of hor new products and watch as photos pop instantly into view. Click on a multimedia icon for technology or usability highlights, performance data, bottom-line verdicts, or videos of our editors showing off their favorites. Click on any photo and zoom it up to fullsereen size. Or zip through a handy review window to drill down for more info.

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- MS-DOS 6.2/Microsoft
- Windows 3.1/Mouse

Business Lease: \$87/MO.

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#### P75 UNDER \$2000

#### Dell Dimension XPS P75 A Pentium Processor-based

75MHz System

· Mini Tower Model BMB BAM . 340MB Hard Drive (13ms).

 VS15 Monitor (15" CRT. NI) . 64-bit PCI 1MB DRAM Video

· 256KB Writeback Cache #9 HawkEye Video Software

 One Diskette Drive (3.5"). · Spacesaver Keyboard

 MS-DOS 6.2/Microsoft Windows 3.1/Mouse

Business Lease: \$74/MO. Order Code #500033

#### MULTIMEDIA 466DM

#### IntelDX2™ 66MHz System

- 8MB RAM
- . 540MB Hard Drive (13ms) VS15 Monitor (15" CRT, NI)
- with 1MB DRAM 2X Multi-session FIDE CD-ROM
- Soundblaster 16 Sound Card
- 128KB Cache
- Windows 31/Mouse

#### **Dell Dimension 466D**

- · Accelerated Local Bus Video
- Peavev 200 Speakers
- One Diskette Drive (3.5") Spacesaver Keyboard
- MS-DOS 6.2/Microsoft

#### Dell Dimension 466D

- IntelDX2 66MHz System
- SMR RAM
- . 540MB Hard Drive (13ms) VS15 Monitor (15" CRT. NI)
- · Accelerated Local Bus Video with 1MB DRAM
- 128KB Cache
- . One Diskette Drive (3.5") Spacesaver Keyboard
- MS-DOS 6.2/Microsoft Windows 31/Mouse

#### 433D WORKSTATION Dell Dimension 433SD i486™ DX 33MHz System

- 4MB BAM . 340MB Hard Drive (13ms)
- . SVGA Monitor (14" CRT) · Accelerated Local Bus Video
- with 1MB DBAM One Diskette Drive (3.5\*)
- Spacesaver Keyboard
- MS-DOS 6.2/Microsoft

Windows 3.1/Mouse

Business Lease: \$70/MO Order Code #300048

Business Lease: \$59/MO.

Business Lease: \$44/MO. Order Code #300049

Dell Dimension™ XPS P75 A Pentium™ Processor-based 75MHz System Business Lease: \$74/Mo.

#### SYSTEM SPECS: Mini Tower Model

- 8MB RAM
- 340MB Hard Drive (13ms)
- VS15 Monitor (15" CRT, NI) NEW 64-bit #9 PCI 1MB DRAM
- 256KB Writeback Cache
- One Diskette Drive (3.5")
- Spacesaver Keyboard
   MS-DOS® 6.2/Microsoft®
  Windows™ 3.1/Mouse
  Order Code #500033

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